

Exemption 6

RCRA SITE SAMPLING REPORT

FOR

FORMER CW PROCESS COMPANY;
AKA WAYNE MANUFACTURING
(EPA ID No. IAD005277256)
Cedar Rapids, Iowa

IN SUPPORT OF
THE U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 7

UNDER
RCRA ENFORCEMENT, PERMITTING, AND ASSISTANCE
(REPA4) CONTRACT
ZONE 3, REGION 7

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1. INTRODUCTION

Under the U.S. Environmental Protection Agency (EPA) RCRA Enforcement, Permitting, and Assistance (REPA4) Contract, Booz Allen Hamilton (Booz Allen) was requested under Task Order (TO) R0731 to support the collection and analysis of environmental samples of various media at 14 sites located in the State of Iowa. The 14 sites were selected by EPA due to known or suspected soil and/or groundwater contamination at each site. Included in the list of 14 sites is the former CW Process Company (CW) facility located in Cedar Rapids, Iowa.

Under Task 1 of TO R0731, Booz Allen developed a general Quality Assurance Project Plan (QAPP) governing the acquisition, management, and use of all sampling data. The Final TO R0731 QAPP (REPA4-1731-001v1) was approved by EPA on July 19, 2010. Booz Allen also developed a Sampling and Analysis Plan (SAP) for each of the 14 sites. The site-specific SAPs detailed the sampling locations and methods to be used at each site. The CW SAP (REPA4-1731-014v1) was approved by EPA on August 20, 2010.

Sampling crews arrived at the CW site on August 25, 2010 to perform surface sediment, surface water, and groundwater sampling. However, crews observed that the areas selected for groundwater sampling were planted in soybeans. EPA decided to postpone the sampling until the crops had been harvested. Sampling was attempted again on December 9, 2010. At this time, surface water and sediment sampling could not be performed because the surface waters were frozen solid. Groundwater sampling was attempted, but groundwater could not be reached (Geoprobe refusal was met at approximately 16 feet below ground surface, and the groundwater levels were below this depth due to a relatively dry season). EPA decided to attempt the sample collection at CW in the spring, before crops were planted.

Sampling crews mobilized to the CW site on Monday, April 4, 2011 to attempt to collect the samples specified in the approved SAP. Only some of the samples specified in the approved QAPP could be collected. Others, such as the majority of the downgradient groundwater samples, could not be collected due to Geoprobe refusal prior to groundwater encounter. The samples collected on April 4, 2011 were packaged and shipped to the EPA Region 7 Laboratory in Kansas City, Kansas on Tuesday, April 5, 2011 for analysis. Analytical results were received on May 6, 2011. This RCRA Site Sampling Report documents the sampling performed at CW and presents the analytical results of the sampling. This report also provides a screening-level comparison of the analytical results to the November 2010 EPA Regional Screening Levels (RSLs).

2. SITE BACKGROUND

This section presents background information for the CW site, including a summary of past investigations and the sampling rationale. Further discussion is provided in the site-specific SAP.

2.1 SITE LOCATION

C.W. Process is located at 5051 Williams Boulevard S.W. in Cedar Rapids, Iowa. The facility consists of one vacant house on partial basement with a nearby, metal manufacturing building constructed over concrete floors with several small attached storage sheds. The house covers approximately 1,800-square-feet and the metal building covers approximately 4,500-square-feet. Several other storage buildings are located on the site, which also contains approximately 23 acres of farm land. The site was formerly operated by C.W. Process for the manufacturing of hammer handles.

2.2 OPERATIONAL HISTORY

The EPA files contain little information of the operational history of the C.W. Process facility. Records show that Wayne Manufacturing began treatment of cyanide wastes at the facility in 1956. The wastes were produced during the manufacturing of fiberglass and tubular steel hammer handles. Around 1995, the facility changed its name to C.W. Process Company, and continued operations for an unknown period of time. It is unclear when operations ceased at the C.W. Process facility. However, Phase II Site Assessments conducted on behalf of C.W. Process in 2004 and 2005 describe the facility as vacant. Currently, no manufacturing operations occur at the former C.W. Process site.

2.3 ENVIRONMENTAL SETTING

The EPA files contain little information on the environmental setting at C.W. Process. A topographic map was downloaded from the Iowa Geographic Map Server (Iowa State University GIS Support and Research Facility) and is included as Appendix A, Map 1. From this map, the site is located between two, unnamed tributaries of Prairie Creek (located to the south of the site). Surface drainage appears to flow to the southwest toward the westernmost unnamed tributary.

During Phase II Site Investigations conducted in 2004 and 2005, temporary groundwater wells were advanced at the site. From the borehole logs, it appears that the site is underlain with 6 to 8 inches of fill. Beneath the fill is sandy clay, with groundwater generally encountered at three to six feet below ground surface (bgs). During the 2005 Phase II Site Investigation, the static groundwater levels were plotted, revealing groundwater flow is generally to the southwest.

The C.W. Process site is surrounded by farm land to the east and west. Residences are present to the north and south. The nearest residence (other than the onsite residence) is approximately 300 feet to the north-northwest. A row of houses is present downgradient of the site, across 33rd Avenue (approximately 400 feet to the south). The 2005 Phase II Site Investigation reported several of the residences to the south have private groundwater wells and use the groundwater for potable purposes.

2.4 ENVIRONMENTAL INVESTIGATION HISTORY

The following is a summary of the EPA file material related to environmental investigations at C.W. Process. An initial Notification of Hazardous Waste Activity was submitted to EPA on August 5, 1980, stating Wayne Manufacturing was a treatment, storage, and disposal (TSD) facility. On August 30, 1982, Wayne Manufacturing submitted a closure and post-closure plan for the facility. However, the closure and post-closure plans were not addressed by the State or EPA. On February 14, 1984, Wayne Manufacturing notified the State of Iowa that it wished to terminate its Part A permit application. The State of Iowa requested closure of three hazardous waste storage areas (identified as a storage shed, an outside storage, and a drum storage area), as well as post-closure liability and financial assurance. No response to this request is contained in the EPA files.

EPA conducted Compliance Evaluation Inspections (CEIs) at the C.W. Process facility in 1986 and 1988. The 1986 CEI identified a treatment pond that had been filled with soil which historically received wastewater from a ferrous sulfate cyanide complexing operation. The 1988 CEI identified various other F006 hazardous waste storage areas and onsite disposal of treated hazardous waste. EPA requested a Part B permit application in May 1988. The EPA files do not contain a Part B application for the facility.

A RCRA Facility Assessment (RFA) was submitted from Wayne Manufacturing in April 1992. The RFA identified the following SWMUs: two above-ground tanks, barrel storage area, transfer areas, and a waste recycling area. No sampling was recommended in the RFA.

A follow-up inspection was conducted on May 5, 1992. During this follow-up inspection, a floor drain in the heat treatment room was identified. The floor drain was reportedly plugged in 1991 to become a sump. Prior to 1991, the drain reportedly discharged through a septic tank and into a nearby stream.

In January 1993, a Preliminary Assessment was conducted. The Preliminary Assessment identified 10 SWMUs:

- North Drum Storage Area
- Steel Evaporator Tub for Non-Cyanide Waste
- Heat Furnace for Cyanide Waste
- Rinse Drums
- Quench Oil Drip Catcher
- Cyanide Wastewater Evaporator
- South Drums Storage Area
- Corrugated Metal Shed
- Quench Oil/Water Separator
- Drainage Collection Sump

No sampling was recommended in the 1993 Preliminary Assessment report.

On September 29, 1993, a CEI was conducted which identified storage of hazardous waste for longer than 180 days and operation of an illegal TSD facility. EPA issued an Order and Notice of Complaint to Wayne Manufacturing for operating a TSD facility without a RCRA permit, failure to maintain the integrity of hazardous waste storage containers, and failure to properly manage hazardous waste storage containers.

Sometime around 1995, the company changed names to C.W. Process. C.W. Process submitted a revised Closure Plan for Furnace No. 2 and the Drum Storage Area in September 1994. Another revision was submitted in August 1996, which included an evaporator dry-down area and drum staging area south of the manufacturing plant. Closure Certification for each of these areas was submitted to EPA on January 30, 1997.

A gap exists in the EPA files from 1997 through 2004. On July 17, 2004, consultants for the [REDACTED] Estate submitted a Phase II Site Investigation Report for the C.W. Process Site. This Phase II Site Investigation Report referenced a Phase I Environmental Assessment report, dated January 7, 2004, which was not in the EPA files. The Phase I Environmental Assessment identified the closed areas of the facility, plus Furnace No. 1, a former treatment pond, above-ground storage tanks, hundreds of mostly-empty drums, and other scrap yard items as recognized environmental conditions.

During the Phase II Site Investigation, seven soil samples, one onsite tap water, and three groundwater samples were collected. Soil samples were analyzed for total cyanide. Water samples were analyzed for volatile organic compounds (VOCs), RCRA metals, total cyanide, and total extractable hydrocarbons as diesel and motor oil. Cyanide was detected in all soil samples at levels ranging from 2.5 to 296 milligrams per kilogram (below closure standards and statewide standards). No contaminants were detected in the drinking water sample. However, all three groundwater samples (collected from temporary wells installed at the site) showed cyanide detections in excess of the statewide standard of 0.2 milligrams per liter (mg/L). The groundwater cyanide concentrations ranged from 4.68 mg/L to 380 mg/L. Diesel and motor oil were also shown to exceed statewide standards, but at a much lesser degree.

A follow-up Phase II Site Investigation was conducted to further delineate the nature and extent of cyanide contamination in groundwater at the C.W. Process site. The second Phase II Site Investigation report, dated March 30, 2005, described the collection of another drinking water sample from a neighboring residence to the east, as well as four additional groundwater samples. All water samples were analyzed for total cyanide. Cyanide concentrations at three of the four temporary groundwater wells were in excess of the 0.2 mg/L statewide standard (detections up to 22.2 mg/L). The source of groundwater contamination was determined to be the former treatment pond (lagoon), which formerly received treated cyanide wastes and has been covered with soil. Static groundwater levels encountered in the Phase II temporary groundwater wells were plotted to determine groundwater flow direction (determined to be to the southwest). The plume size was estimated, and a generic plume map was created. The follow-up Phase II report also stated that several neighboring residences use private groundwater wells to obtain drinking water.

Appendix A contains the Phase II sampling locations map (Map 2), groundwater flow direction map (Map 3), generic plume map (Map 4), and a map of the adjacent properties (Map 5). A 2009 aerial photograph of the site, downloaded from the Iowa State University Geographic Information System server, is also included in Appendix A, Map 6.

During the April 4, 2011 Site Sampling Visit, Booz Allen met with Mr. [REDACTED] onsite. Mr. [REDACTED] was a former employee at CW, and is familiar with the cleanup activities that were undertaken. He stated that the former cyanide treatment pond was cleaned out in the mid-1980's, and that approximately 170 to 180, 55-gallon drums of soil were excavated during cleanup. Mr. [REDACTED] also stated that post-excavation confirmation testing showed the remaining soil to be below state cyanide standards.

2.5 SAMPLING RATIONALE

Soil samples collected near the manufacturing area during the two Phase II investigations have not exhibited significant contamination. However, cyanide contamination in groundwater has been characterized at concentrations three orders of magnitude greater than the statewide standard of 0.2 mg/L. The source has been identified as the former treatment pond south of the manufacturing area. At this time, the downgradient extent of the groundwater plume has not been defined. Based on the groundwater flow and plume maps contained in the March 30, 2005 Phase II Site Investigation Report, the cyanide contamination appears to be flowing south, toward residential areas (which reportedly use private groundwater wells to obtain drinking water).

The May 5, 1992 follow-up inspection also identified a floor drain in the heat treatment room that discharged through a septic tank and into a nearby stream. No surface water, sediment, or soil samples have been taken from the drainage swale leading to the nearby stream or from the stream itself. It is unknown if cyanide or RCRA metals contamination has reached these areas.

The goal of the RCRA Site Sampling at CW is to further qualify the extent of cyanide and/or RCRA metals contamination in the groundwater and/or surface water/sediment, and determine if contamination has reached the property boundaries. Eight groundwater sampling locations were selected radiating from the previously-identified source area(s) at the site, toward the property boundaries. In addition, five surface water locations were identified for surface water and sediment sampling. A map of the sampling locations is included as Appendix A, Map 7. Total RCRA metals and cyanide were selected as the contaminants of concern for all sampling locations.

3. SITE SAMPLING

This section describes the site sampling activities performed at the CW site. Unless otherwise discussed in the following Sections, all activities were performed as described in the EPA-approved QAPP and SAP.

3.1 PRE-SAMPLING ACTIVITIES

3.1.1 Facility Access

Under Task 3 of TO R0731, Booz Allen attempted to contact property owners (CW site and adjacent properties) to obtain permission for site access and sampling. All attempts and conversations were documented on a Telephone Conversation Record, which is included in Appendix B. In summary, Booz Allen and EPA were unsuccessful in contacting the CW property owner [REDACTED] prior to the August and December 2010 sampling attempts. However, since sampling was not planned for portions of the former facility owned by Mr. [REDACTED] no further attempts were made prior to the April 2011 sampling event. Booz Allen and EPA identified the owner of the agricultural land west of the CW site prior to the December 2010 sampling attempt. A letter was sent to the owner notifying them of the sampling. Booz Allen contacted (via telephone) the owner of the agricultural land east of the CW site prior to the April 2011 event (Mr. [REDACTED] and obtained permission to access his property.

Under Task 4 of TO R0731, Booz Allen contacted the Iowa Department of Natural Resources (IDNR), Iowa Geological and Water Survey section to request identification of all groundwater wells within a one-mile radius of the site. Location data and maps were forwarded by Booz Allen to the Iowa Geological and Water Survey section on August 7, 2010. Search results received from the Iowa Geological and Water Survey are included in Appendix C. These results are summarized and discussed in Section 5.3.2 of this report.

Booz Allen contacted Iowa One Call prior to the August and December 2010 sampling attempts to request public utility marking at the CW site. During both utility clearances, all utility owners informed Booz Allen that no utilities were present at or near the sampling locations. During the call prior to the December 2010 sampling event, the Iowa One Call operator explained that the clearances have no expiration date, but are generally considered valid for 180 days. Therefore, a third clearance call was not placed prior to the April 2011 sampling event.

3.2 SAMPLING DESIGN

3.2.1 Sample Locations

Eight sampling locations (Locations 006 through 013) were selected downgradient of the source area (identified during the Phase I and Phase II investigations) for groundwater sampling. In addition, five sampling locations (Locations 001 through 005) were selected downgradient of the source area for surface water and sediment sampling. Constituents of concern at all locations were total RCRA metals and cyanide. A map showing these locations is included as Appendix A, Map 7.

Descriptions of the sampling locations, as well as the rationale for their selection, are summarized in Table 1 below. Several of the samples planned for this investigation could not be collected. Table 1 identifies the samples that could not be collected and the reason(s). Table 1 also includes global positioning system (GPS) coordinates for each location. The GPS coordinates were located using a Trimble GeoExplorer GeoXT hand-held GPS unit. According to the manufacturer's specification sheets, this GPS unit provides location data with sub-meter accuracy. The data files were post-processed by the unit's rental company (Field Environmental Instruments, Inc.), and corrected coordinates were e-mailed to Booz Allen. The post-processed GPS data, indicating horizontal precision of each measurement of 1.5 to 3.4 feet, is included in Appendix D. It should be noted that GPS coordinates at several locations were not obtained. Table 1 identifies these locations and the reason(s) for not collecting GPS data.

Table 1. Sample Locations, CW

Location	Location Description*	GPS	Selection Rationale
001	Sediment sampling location from drainage ditch SW of the former CW Process site; 28.7 feet SW of Location 006. Surface water was not collected at Loc 001 (water not available).	GPS coordinates not obtained (low area, unable to locate the minimum five satellites for positioning)	Surface drainage, downgradient and west of the source area
002	Surface water/sediment sampling location from unnamed tributary W of the former CW Process site; west fork, 40 feet N of 33 rd Ave.	GPS coordinates not obtained (low, wooded area, unable to locate the minimum five satellites for positioning)	Surface drainage, downgradient and west of the source area
003	Surface water/sediment sampling location from unnamed tributary W of the former CW Process site; upgradient location, 25 feet south of Williams Blvd SW.	GPS coordinates not obtained (low area, unable to locate the minimum five satellites for positioning)	Surface drainage west of the source area, upgradient location
004	Surface water/sediment sampling location from unnamed tributary W of the former CW Process site; east fork, 31 feet N of 33 rd Ave.	GPS coordinates not obtained (low, wooded area, unable to locate the minimum five satellites for positioning)	Surface drainage, downgradient and west of the source area
005	Surface water/sediment sampling location from unnamed tributary W of the former CW Process site; offsite, 12 feet S of 33 rd Ave.	Latitude: +41° 56' 43.959040055" Longitude: -91° 44' 03.065818799"	Surface drainage west of the source area, downgradient offsite location
006	Groundwater sampling location, presumed downgradient and west of the source area; 415 feet N of 33 rd Ave, 419 feet E of unnamed tributary. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 48.415743996" Longitude: -91° 43' 59.303678563"	Groundwater sampling location, presumed downgradient and west of the source area (in West Field) Groundwater not sampled, limited/no production within screen

Location	Location Description*	GPS	Selection Rationale
007	Groundwater sampling location, presumed downgradient and west of the source area; 338 feet N of 33 rd Ave, 203 feet E of unnamed tributary. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 47.548544473" Longitude: -91° 44' 02.051699221"	Groundwater sampling location, presumed downgradient and west of the source area (in West Field) Groundwater not sampled, limited/no production within screen
008	Groundwater sampling location, presumed downgradient and SW of the source area; 136 feet N of 33 rd Ave, 95 feet E of unnamed tributary. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 48.518924537" Longitude: -91° 44' 03.3454996280"	Groundwater sampling location, presumed downgradient and SW of the source area (in West Field) Groundwater not sampled, limited/no production within screen
009	Groundwater sampling location, presumed downgradient and SW of the source area; 293 feet N of 33 rd Ave, 128 feet W of N-S fenceline south of the site. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 47.133030150" Longitude: -91° 43' 57.239899090"	Groundwater sampling location, presumed downgradient and S-SW of the source area (in West Field) Groundwater not sampled, limited/no production within screen
010	Groundwater sampling location, presumed downgradient and SW of the source area; 66 feet N of 33 rd Ave, 128 feet W of N-S fenceline south of the site. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 44.893033310" Longitude: -91° 43' 57.256365168"	Groundwater sampling location, presumed downgradient and S-SW of the source area (in West Field) Groundwater not sampled, limited/no production within screen
011	Groundwater sampling location, presumed downgradient and SE of the source area; 142 feet N of 33 rd Ave, 28 feet E of N-S fenceline south of the site.	Latitude: +41° 56' 45.706852333" Longitude: -91° 43' 55.152078222"	Groundwater sampling location, presumed downgradient and S-SE of the source area (in East Field)
012	Groundwater sampling location, presumed downgradient and SE of the source area; 231 feet N of 33 rd Ave, 104 feet E of N-S fenceline south of the site. Groundwater not sampled, limited/no production within screen	Latitude: +41° 56' 46.593529291" Longitude: -91° 43' 54.187501515"	Groundwater sampling location, presumed downgradient and S-SE of the source area (in East Field) Groundwater not sampled, limited/no production within screen
013	Groundwater sampling location, presumed downgradient and SE of the source area; 78 feet N of 33 rd Ave, 168 feet E of N-S fenceline south of the site.	Latitude: +41° 56' 45.090221621" Longitude: -91° 43' 53.267608853"	Groundwater sampling location, presumed downgradient and S-SE of the source area (in East Field)

Location	Location Description*	GPS	Selection Rationale
Existing Well	Existing groundwater well south of the source area (Well TMW1 from Phase II Investigation)	Latitude: +41° 56' 47.168918476" Longitude: -91° 43' 56.046575680"	Furthest downgradient well installed during Phase II Investigation (still present at site); resampled for comparison purposes

* = distances presented in the Location Description were measured April 4, 2011.

** = Locations 006 and 007 were unable to be post-processed. Horizontal GPS precision for these locations is listed as 18.7 to 19.9 feet

3.2.2 Sample Intervals and Matrices

As presented in the SAP, the sampling design for this site included the collection of 18 environmental samples at the 13 locations described above. Eight (8) quality control (QC) samples were also to be collected. These 26 samples included the following:

- Eight (8) groundwater samples from direct-push boreholes advanced at the site
- One (1) duplicate groundwater sample (QC)
- One (1) MS/MSD groundwater sample (QC)
- One (1) equipment rinsate blank sample (groundwater sampling equipment) (QC)
- Five (5) surface sediment samples
- One (1) duplicate sediment sample (QC)
- One (1) MS/MSD sediment sample (QC)
- One (1) equipment rinsate blank sample (soil/sediment sampling equipment) (QC)
- Five (5) surface water samples
- One (1) duplicate surface water sample (QC)
- One (1) MS/MSD surface water sample (QC)

During the April 4, 2011 investigation, only 12 environmental and four (4) QC samples were collected. These 16 samples included the following:

- Two (2) groundwater samples from direct-push boreholes advanced at the site (two of three planned for the East Field were collected; the rest could not be collected due to limited/no groundwater production within the screen)
- One (1) groundwater sample from an existing well (TMW1 from Phase II Investigation)
- One (1) duplicate groundwater sample (QC)
- Five (5) surface sediment samples
- One (1) duplicate sediment sample (QC)
- One (1) equipment rinsate blank sample (soil/sediment sampling equipment) (QC)
- Four (4) surface water samples (four of five planned sample locations where surface water was present)
- One (1) duplicate surface water sample (QC)

Separate MS/MSD samples were not collected, per instruction from the EPA Region 7 Laboratory (stating that the primary sample volume contains enough sample to run MS/MSD analyses). A groundwater sampling equipment rinsate blank was not collected, as a new PVC screen was used for each borehole. As a groundwater screen was not decontaminated and reused for sampling, an equipment blank sample on the screen was not considered to be necessary.

The 16 samples collected on April 4, 2011 were shipped to the EPA Region 7 Laboratory for total RCRA metals (SW-846 Method 6010) and total cyanide (SW-846 Method 9010) analyses. Table 2 presents an accounting of the normal samples (i.e., non-QC samples) and the QC samples collected.

Table 2. Sample Locations, Matrices, and Analyses

Location	Sample ID*	EPA Lab ID	Type	Media	Depth**	Analyses
001	CW-01-SD-001	5004-1	Normal	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
002	CW-01-SD-002	5004-2	Normal	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
	CW-01-SW-002	5004-102	Normal	Surface Water	N/A	Total RCRA metals, total cyanide
003	CW-01-SD-003	5004-3	Normal	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
	CW-01-SW-003	5004-103	Normal	Surface Water	N/A	Total RCRA metals, total cyanide
004	CW-01-SD-004	5004-4	Normal	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
	CW-02-SD-004	5004-4FD	QC; Duplicate	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
	CW-01-SW-004	5004-104	Normal	Surface Water	N/A	Total RCRA metals, total cyanide
	CW-02-SW-004	5004-104FD	QC; Duplicate	Surface Water	N/A	Total RCRA metals, total cyanide
005	CW-01-SD-005	5004-6	Normal	Sediment	Surface (0-2 inches bgs)	Total RCRA metals, total cyanide
	CW-01-SW-005	5004-106	Normal	Surface Water	N/A	Total RCRA metals, total cyanide
Existing Well	CW-01-GW-010	5004-111	Normal	Groundwater	Sample depth: 10 feet bgs	Total RCRA metals, total cyanide
	CW-02-GW-010	5004-111FD	QC; Duplicate	Groundwater	Sample depth: ~10 feet bgs	Total RCRA metals, total cyanide
011	CW-01-GW-011	5004-113	Normal	Groundwater	Sample depth: ~8 feet bgs	Total RCRA metals, total cyanide
013	CW-01-GW-011	5004-115	Normal	Groundwater	Sample depth: ~8 feet bgs	Total RCRA metals, total cyanide
N/A	CW-01-EB-001	5004-116	QC; SD EB	Aqueous	N/A (Sediment EB)	Total RCRA metals, total cyanide

* = Sample ID CW-01-SD-001 corresponds to CW, first sample, sediment, collected at location 001

** = bgs: below ground surface

3.3 SAMPLING METHODS

Booz Allen, Terranext, and PSA Environmental personnel performed the surface and subsurface sampling at CW on April 4, 2011. Unless otherwise discussed in this section and/or Section 3.5,

all sampling was performed as described in the EPA-approved QAPP and SAP. Sampling observations and methods were documented in field logbooks and forms, as well as through photographs. Copies of the field logbooks and forms are included in Appendix E, and the photographic log is included in Appendix F.

It should be noted that the surface soil/sediment sample depths listed on the Sample Collection Field Sheets (included in Appendix E) were incorrectly marked as 0-1 feet below ground surface (bgs). The actual sampling depths were approximately 0-2 inches bgs. This entry error was discovered after the field sampling event, and the Sample Collection Field Sheets were corrected at that time.

The field logbooks, forms, and the photographic log also includes notes/photographs from the aborted sampling attempts on August 25 and December 9, 2010.

3.3.1 Surface Water Sampling

Surface water samples were collected as discrete grab samples at Locations 002 through 005. No surface water was present at Location 001; therefore, no surface water sample was collected at this location. Sampling was performed at downstream locations first, then working upstream. Where surface water and sediment were to be collected from the same location, the surface water sample was collected first. The sediment layer was not disturbed during surface water sampling. At each location, the sampler stood on the bank adjacent to the sample location and measured water quality parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, oxidation/reduction potential) by carefully submerging a Horiba U-52 multi-parameter probe into the water. The water quality parameters were recorded on the Sample Collection Field Sheets (Appendix E), and are presented in Table 3 below.

Table 3. Surface Water Quality Parameters

Location	Temperature (° Centigrade)	pH	Dissolved oxygen (mg/L)	Turbidity (NTU)	Conductivity (µS/cm)	Oxidation/reduction potential
002	6.08	8.30	17.77	0.0	0.551	216
003	5.98	7.51	12.88	20.7	0.535	92
004	Not measured; surface water was too shallow for measurement with the Horiba U-52 probe					
005	6.29	7.63	13.83	0.0	0.552	202

After measuring the water quality parameters, the sampler gently submerged a one-liter cubitainer in the water (slightly upstream of the water quality parameter measurement location) to collect the total RCRA metals sample. The cubitainer was submerged with the mouth of the container facing upstream, allowing water to slowly fill the container. A second one-liter cubitainer was then submerged to collect the total cyanide sample. Immediately following sample collection, the cubitainers were preserved with concentrated nitric acid (total RCRA metals sample) or sodium hydroxide (total cyanide sample). The sample containers were then closed, labeled, taped, and transferred to a sample cooler with ice. The sample container types and preservatives used are listed on the Analytical Services Request (ASR) form, which was provided by the EPA Region 7 Laboratory. A copy of the ASR form is included in Appendix G.

Surface water sampling analytical results are presented and discussed in Section 4.3 of this report.

3.3.2 Sediment Sampling

Sediment sampling was performed at Locations 001 through 005. Sampling was performed at downstream locations first, then working upstream. At locations where surface water and sediment were sampled (Locations 002 through 005), the surface water sample was collected first without disturbing the sediment. After collection of the surface water samples, the sampler stood on the banks and gently removed the top one to two inches of sediment/soil with a stainless steel spoon. The sample was collected from beneath the water and at the water's edge, from visible sediment deposits. The sediment and soil was placed into a stainless steel bowl. Rocks and debris were removed from the bowl, and the sample was homogenized using the stainless steel spoon. Following homogenization, the sediment samples for total RCRA metals and total cyanide analyses were collected by transferring the soil into the appropriate container (a single, eight-ounce glass jar) using the stainless steel spoon. The sample container was then closed, labeled, taped, bubble-wrapped, and transferred to a sample cooler with ice. The sample container types (i.e., a single, eight-ounce jar for both analyses) are listed on the ASR form (Appendix G).

It should be noted that the surface soil/sediment sample depths listed on the Sample Collection Field Sheets (included in Appendix E) were incorrectly marked as 0-1 feet below ground surface (bgs). The actual sampling depths were approximately 0-2 inches bgs. This entry error was discovered after the field sampling event, and the Sample Collection Field Sheets were corrected at that time.

Sediment sampling analytical results are presented and discussed in Section 4.2 of this report.

3.3.3 Groundwater Sampling

Subsurface groundwater samples at Locations 011 and 013 were collected as discrete, grab samples from a Geoprobe borehole. The Geoprobe unit was used to bore down to groundwater encounter (approximately eight and six feet bgs, respectively). A new PVC screen (five-foot screen length) was placed into the borehole, and the groundwater level was allowed to equilibrate. After equilibration, groundwater samples were collected at each location using a peristaltic pump as dictated in the EPA-approved SAP.

Groundwater samples were not collected at planned Locations 006 through 010 and 012. At these locations, groundwater was either not encountered, or was encountered in clayey soil that effectively "clogged" the well screens. Specifically, the following was noted for Locations 006 through 010 and 012:

- Location 006 – the Geoprobe encountered shale at approximately 12 feet bgs and could not be advanced further. The soil near the bottom of the borehole was slightly moist. A 10-foot PVC screen length was placed into the borehole. After approximately one hour, no water had accumulated in the screen. The borehole at Location 006 was abandoned without sampling.

- Location 007 – the Geoprobe encountered shale at approximately 12 feet bgs and could not be advanced further. Soils were clayey and saturated at approximately 8 to 8.5 feet bgs. A five-foot PVC screen length was placed into the borehole. After approximately two hours, groundwater had accumulated in the screen to 5.1 feet bgs. Groundwater purging was attempted over the next approximately 30 minutes. However, the well would not produce enough water for sampling (estimated 100 mL per hour water production, with 2,000 mL needed for sampling). The water produced was heavily sediment-laden. The borehole at Location 007 was abandoned without sampling.
- Location 008 – the Geoprobe encountered shale at approximately 12 feet bgs and could not be advanced further. Soils were clayey and saturated at approximately 6 feet bgs. A five-foot PVC screen length was placed into the borehole. After approximately two hours, groundwater had accumulated in the screen to 6.35 feet bgs. Groundwater purging was attempted over the next approximately 60 minutes. However, the well would not produce enough water for sampling (estimated <100 mL per hour water production, with 2,000 mL needed for sampling). The water produced was also heavily sediment-laden. The borehole at Location 008 was abandoned without sampling.
- Location 009 – the Geoprobe encountered shale at approximately 12 feet bgs and could not be advanced further. Slightly moist soil was only noted at the very bottom of the borehole. A 10-foot PVC screen length was placed into the borehole. However, after approximately 1.5 hours, no water had accumulated in the screen. The borehole at Location 009 was abandoned without sampling.
- Location 010 – the Geoprobe encountered shale at approximately 16 feet bgs and could not be advanced further. Moist soil was not observed. A 10-foot PVC screen length was placed into the borehole. However, after approximately two hours, no water had accumulated in the screen. The borehole at Location 010 was abandoned without sampling.
- Location 012 – the Geoprobe encountered shale at approximately 9 feet bgs and refusal at approximately 12 feet bgs. Soils were clayey and saturated at approximately 8 feet bgs. A five-foot PVC screen was placed into the borehole. After approximately one hour of equilibration, approximately 3.5 feet of water had accumulated in the screen. Groundwater purging was attempted, but the well could not produce enough water for sampling (estimated 250 mL per hour water production, with 2,000 mL needed for sampling). Since nearby Locations 011 and 013 were producing water at a much greater rate, it was decided to abandon Location 012 without sampling.

In addition to sampling at Locations 011 and 013, a groundwater sample was collected from an existing well (TMW1 from the Phase II Investigation). This well is a two-inch PVC well that is uncapped. Total depth was measured to be approximately 17.3 feet bgs. The bottom of the well was “soft” (i.e., the probe hit sediment or soil at the bottom) and it was unclear if the well is capped at the bottom. At the time of sampling, groundwater within the existing well was approximately 2.4 feet bgs.

3.3.3.1 Water Level Measurements

A small-diameter (0.25-inch diameter) water level probe was lowered into the PVC screens at Locations 011 and 013 after equilibration to measure the depth to groundwater. The depth to groundwater was measured to the nearest 0.01 feet and recorded in the field logbook. The depths to groundwater are listed below in Table 3. A water level measurement at the existing well was also taken.

3.3.3.2 Groundwater Purging

At Locations 011 and 013, groundwater samples were collected as grab samples from a PVC screen installed with a Geoprobe. As such, traditional purging was not performed. However, after equilibration, approximately one gallon of groundwater was purged prior to sample collection. At the existing well, low flow groundwater purging was performed as described in the QAPP.

At Locations 011 and 013, Teflon-coated tubing (3/16-inch inner diameter; 1/4-inch outer diameter) was inserted into the screen (approximately one foot above the bottom of the screen). The tubing was set to approximately 10 feet bgs at the existing well. The tubing was connected to a peristaltic pump with silicone tubing. The flow rate was then set to approximately 100-200 milliliters per minute (mL/min), and the groundwater was purged. At periodic intervals, groundwater purging parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, oxidation/reduction potential) were measured using a Horiba U-52 multi-parameter probe and a flow-through cell. The groundwater parameter measurements were recorded, and are presented in Table 4 below.

Table 4. Groundwater Monitoring Parameters

Loc.	Time	Water Level	Flow Rate	Temp	pH	D.O.	Turb.	Cond.	ORP
011	1348	~2.4	Pump turned on						
	1353	--	~150	9.46	7.27	0.55	>1,000	0.601	-15
	1358	--	~150	8.72	7.11	0.65	>1,000	0.607	-13
	1402	--	~150	8.47	7.08	1.63	>800	0.616	39
	1402	Began sample collection. Total purged = approximately 1 gallon							
013	1429	~3.3	Pump turned on						
	1437	--	~150	6.87	7.59	8.17	>1,000	0.518	98
	1442	--	~150	6.81	7.71	7.78	>800	0.511	107
	1447	--	~150	6.52	7.58	8.19	112	0.514	109
	1447	Began sample collection. Total purged = approximately 1 gallon							
Existing Well	0956	~2.4	Pump turned on						
	1000	--	~200	5.29	7.36	9.01	10.7	1.01	335
	1005	--	~200	5.08	7.44	6.99	7.9	0.980	343
	1010	--	~200	4.95	7.45	6.97	1.0	0.970	342
	1015	--	~200	4.85	7.46	6.91	0.0	0.966	345
	1020	--	~200	4.67	7.49	8.21	0.0	0.934	356
	1024	--	~200	4.64	7.49	8.22	0.0	0.929	357
	1024	Began sample collection. Slight greenish tint. Total purged = approximately 2 gallons.							

Notes: Water level is feet below ground surface; flow rate in mL/minute; temp is temperature in degrees Centigrade (°C); pH is in Standard Units (S.U); D.O is dissolved oxygen in milligrams per liter (mg/L); turb is turbidity in

Nephelometric Turbidity Units (NTU), cond is conductivity in microSiemens per centimeter ($\mu\text{S}/\text{cm}$); ORP is oxidation/reduction potential in millivolts (mV).

Purged groundwater was collected in a five-gallon bucket and disposed on the ground near the groundwater sampling location (after the collection of the groundwater sample from the location and any adjacent locations). The purged groundwater was allowed to seep back into the ground (i.e., no surface runoff occurred).

3.3.3.3 Groundwater Sample Collection

After purging at least one gallon, groundwater samples were collected following the procedures described in the EPA-approved QAPP and SAP. Groundwater samples for total metals were collected in a 1-liter cubitainer (preserved with nitric acid). A second 1-liter cubitainer (preserved with sodium hydroxide) was used to collect the total cyanide sample. After collection, the RCRA metals and cyanide sample collection containers were sealed, labeled, taped, and placed in a sample cooler with ice.

Groundwater sampling analytical results are presented and discussed in Section 4.4 of this report. It should be noted that the groundwater samples from Geoprobe locations (Locations 011 and 013) were significantly turbid (see Table 4 above). This turbidity and its effects on COC concentrations (specifically RCRA metals) are also discussed in Section 4.4.

3.3.3.4 QC Sample Collection

The QC samples listed in Table 2 were also collected. Duplicate samples (one sediment duplicate and one groundwater duplicate) were collected at the same location/interval as the normal samples, in the same manner. Triplicate volumes were not collected for MS/MSD samples per instruction from the EPA Region 7 Laboratory (primary samples contain enough volume for MS/MSD analyses). One equipment blank from sediment sampling equipment (bowls, spoons) was collected by pouring deionized water (supplied by the EPA Region 7 Laboratory) over freshly-decontaminated equipment, then transferring the water into sample containers. An equipment blank was not collected for surface water sampling equipment, as no equipment was used (i.e., the sample containers were submerged directly into the surface water). An equipment blank was not collected for groundwater sampling equipment, as only single-use equipment was used for sampling (i.e., no decontamination and re-use of equipment occurred).

The results of the equipment blank QC sampling are presented in Sections 4.1 of this report. The results of the duplicate sampling are presented in Sections 4.2, 4.3, or 4.4, as applicable.

3.3.3.5 Equipment Decontamination

Decontamination of sampling equipment was conducted prior to and after each sampling location as prescribed in REPA4 SOP T-3: *Equipment Decontamination* to assure the quality of samples collected. Disposable equipment intended for one time use (e.g., groundwater sampling bailers) was not decontaminated but was packaged for appropriate disposal. Additionally, all equipment

that was reused (e.g., stainless steel spoons and bowls, Geoprobe screen) was decontaminated prior to and after each use and if it came in contact with any potentially-contaminated media.

Equipment was decontaminated in a pre-designated area, and clean bulky equipment was stored in uncontaminated areas. Cleaned small equipment was stored in plastic bags or covered. Materials stored for more than a few hours were also covered.

3.3.3.6 Borehole Abandonment

All soil boreholes were abandoned as prescribed in REPA SOP T-5: *Monitoring Well Installation* and in accordance with state and local requirements. Solid bentonite pellets were poured into each borehole from depth to surface level.

3.3.3.7 IDW Management

Per the PWS and TOP, soil cuttings and decontamination fluids investigation-derived waste (IDW) were left onsite. Soil cuttings were thin-spread at/near the borehole locations, and decontamination fluids were disposed on the ground. Booz Allen containerized and removed other IDW, such as used personal protective equipment (PPE) and used sampling supplies, for proper offsite disposal.

3.4 SAMPLE HANDLING AND CUSTODY

For all samples collected at this site, the chain-of-custody and sample storage requirements of SW-846 were followed. The locations sampled, observations, number and type of containers, and requested analyses were recorded in the field notebook, Sample Collection Field Sheets, chain-of-custody form, and Sampling Report. These QA/QC records were and will be managed and retained as prescribed in the REPA4 QMP.

Booz Allen ensured the integrity and security of all samples under REPA4 control using a stringent chain-of-custody protocol comparable to the chain-of-custody protocol specified in the CLP program. Immediately following collection, samples were placed on ice in a cooler. The samples remained in Booz Allen custody from sample collection (Monday, April 4, 2011) through following day. Sample coolers were only opened on April 4 and 5 to add additional samples and/or new ice, and were subsequently re-sealed. The sample coolers were shipped via Federal Express to the EPA Region 7 Laboratory on Tuesday, April 5, 2011 with the chain-of-custody intact. A copy of the chain-of-custody form and the shipping airbill for these samples is included in Appendix D.

3.5 DEVIATIONS FROM THE QAPP AND/OR SAP

The following deviations from the EPA-approved QAPP and/or SAP occurred during the sampling at this site.

- QAPP Section 2.7.1 (page 2-10) and SAP Section 3.1 (page 3-1) and Section 3.1 Table 2 (page 3-2). These sections describe the collection of triplicate sample volumes for

MS/MSD analyses. However, the ASRs provided by the EPA Region 7 Laboratory (included in Appendix G) state that extra (triplicate) volumes are not needed for metals or cyanide samples, as the primary samples contain enough sample for MS/MSD analyses. Therefore, triplicate sample volumes were not collected for any of the samples. As the sample volumes proved to be enough for MS/MSD analyses, this deviation from the QAPP and SAP does not affect data quality.

- SAP Sections 3.1, Table 1 (page 3-1) Table 2 (page 3-2). These tables list the collection of an equipment blank sample for groundwater sampling equipment. This was based on the assumption that a stainless steel screen would be used and decontaminated between locations. However, new PVC screens were used during the sampling event, and were disposed after one-time use. As only single-use screens and tubing was used for groundwater sampling, decontamination was not necessary and the collection of an equipment blank for groundwater sampling equipment was deemed to be unnecessary. This deviation from the SAP does not affect data quality.
- QAPP Section 3.2.6.4 (page 3-13) and SAP Section 3.2.6 (page 3-7). These sections describe the inclusion of a temperature blank in the sample coolers to allow the EPA Laboratory to verify sample temperatures upon receipt. Per a discussion with EPA Laboratory personnel, a temperature blank is not required. Therefore, these QA samples were not prepared and sent with the sample coolers. This deviation from the QAPP and SAP does not affect data quality, as sample temperatures are measured directly from the coolers upon receipt.
- SAP Sections 3.1, Table 1 (page 3-1) and 3.3.2.1 (page 3-4). These sections describe the sediment/soil sample interval as 0-1 feet bgs. This was based on the assumption that limited sediment would be present and the sample would consist primarily of surface soil. However, during the sampling event, it was noted that ample sediment and water-deposited soils were present at most locations. The sediment/soil samples collected on April 4, 2011 were collected from the 0-2 inches bgs interval, and consisted primarily of sediment. This deviation from the QAPP improves data quality, as the sediment samples more closely represent material carried by surface water from the site.
- SAP Section 3.1, Table 1 (page 3-1) and Appendix D, Map 7. The following deviations from the types of samples collected and/or the locations of samples occurred during the April 4, 2011 sampling event:
 - The SAP lists surface water and sediment sampling at Locations 001. This location was sited in a drainageway running southwest from the former CW site. During the sampling event, it was noted that no surface water was present in this drainageway. Location 001 was moved southwest of its SAP location (to a low area with ample sediment), and only the sediment sample was collected.
 - Location 002 (surface water and sediment) was also originally sited in the drainageway running southwest from the former CW site. It was noted that no surface water was present in this drainageway. It was also noted that the unnamed tributary west of the West Field forked near 33rd Avenue. Location 004 was sited on the east fork of this tributary. Location 002 was moved to the west fork of this unnamed tributary.
 - Location 005 (surface water and sediment) was originally sited in the unnamed tributary west of the West Field, approximately 500 feet downstream from 33rd Avenue. However, the landowner at this location has “no trespassing” signs posed on

the property and was not home at the time of sampling. Location 005 could not be accessed without entering the landowner's property. Therefore, Location 005 was moved approximately 500 feet upstream of its original location, to a position immediately south of 33rd Avenue.

- During the site sampling event, an existing well from the Phase II Investigation (TMW1) was located near the site of Location 009. This 2-inch diameter, 17.3 feet bgs deep, PVC well was uncapped and held approximately 15 feet of water. A groundwater sample was collected from this existing well during the April 4, 2011 sampling event.
- Groundwater sampling was identified in the SAP at Locations 006 through 013. However, groundwater samples were not collected at Locations 006, 007, 008, 009, 010, and 012 due to no groundwater encounter prior to Geoprobe refusal and/or lack of water production within the groundwater screen. As such, groundwater samples were only collected at Locations 011 and 013 (both in the East Field, southeast of the former CW site).

The lack of groundwater sampling from the West Field (Locations 006 through 010) significantly affects the integrity of the investigation. Groundwater flow from the former CW site was tentatively identified as to the south, southwest, and/or southeast during the Phase II Investigation. The surface topography of the area also suggests a southwest groundwater flow. By not collecting groundwater samples from the West Field, the presence of groundwater contamination in the presumed, primary downgradient direction from the site cannot be determined.

Geoprobe refusal (from hard shale) was met at approximately 12 to 16 feet bgs in the West Field. At many locations, groundwater was present above the shale. However, the silty, clayey material in the subsurface above the shale appeared to effectively "clog up" the screens set in Geoprobe boreholes. Water production within these screens was too slow to perform groundwater sampling. Based on these observations, it appears that fully-installed and developed groundwater monitoring wells would have to be used to collect groundwater samples from the West Field.

4. ANALYTICAL RESULTS

Analytical results were received by Booz Allen on May 6, 2011. The following sections present the results of the QA, soil, and groundwater sampling conducted on April 4, 2011.

4.1 QA SAMPLE RESULTS

Table 5 below presents the analytical results of the sediment sampling equipment blank (EB) sample collected on April 4, 2011.

Table 5. CW, Field QA Sample Results (µg/L)

Analyte	Sediment EB 04/04/2011 CW-01-EB-001 (5004-116)
Metals (RLAB Method 3123.1C)	
Antimony	2.0 U
Arsenic	1.0 U
Barium	5.0 U
Beryllium	1.0 U
Cadmium	1.0 U
Chromium	2.0 U
Cobalt	1.0 U
Copper	2.0 U
Lead	1.0 U
Manganese	1.0 U
Nickel	1.0 U
Selenium	5.0 U
Silver	1.0 U
Thallium	1.0 U
Vanadium	1.0 U
Zinc	2.0 U
Cyanide (RLAB Method 3135.2J)	
Cyanide	10 U

µg/L = micrograms per liter; RL = Reporting Limit; EB = Equipment Blank; U = Not detected at or above RL; NA = Not Analyzed; UJ = Not detected at or above RL and RL is an estimate.

Bold = Analyte detected above Reporting Limit

No RCRA metals or cyanide were detected at or above reporting limits in the sediment sampling equipment blank.

4.2 SEDIMENT SAMPLE RESULTS

Table 6 below presents the analytical results of the sediment samples.

Table 6. CW, Sediment Sample Results (mg/kg)

Analyte	Loc 001 0-2 inches bgs CW-01-SD-001 (5004-1) 4/4/2011	Loc 002 0-2 inches bgs CW-01-SD-002 (5004-2) 4/4/2011	Loc 003 0-2 inches bgs CW-01-SD-003 (5004-3) 4/4/2011	Loc 004 0-2 inches bgs CW-01-SD-004 (5004-4) 4/4/2011	Loc 004-Dup 0-2 inches bgs CW-02-SD-004 (5004-4FD) 4/4/2011	Loc 005 0-2 inches bgs CW-01-SD-005 (5004-6) 4/4/2011
Metals (RLAB Method 3122.3D)						
Arsenic	4.9 U	6.9 U	7.4 U	6.3 U	6.6 U	6.4 U
Barium	97.2	144	139	123	140	79.6
Cadmium	1.8	1.6	1.9	1.9	2.1	1.3 U
Chromium	10.3	10.7	12.3	14.2	14.8	6.7
Lead	16.3	14.6	18.2	17.0	19.5	9.5
Selenium	9.8 U	13.8 U	14.8 U	12.5 U	13.2 U	12.8 U
Silver	2.0 U	2.8 U	3.0 U	2.5 U	2.6 U	2.6 U
Cyanide (RLAB Method 3135.2J)						
Cyanide	0.200 U	0.200 U	0.200 U	0.200 U	1.12	0.200 U

Notes: mg/kg = milligrams per kilogram; RL = Reporting Limit; U = Not detected at or above RL;

UJ = Not detected at or above RL and RL is an estimate; bgs = below ground surface

Bold = Analyte detected above Reporting Limit

As shown in Table 6, barium, cadmium, chromium, and/or lead were detected at or above reporting limits in all sediment samples collected on April 4, 2011. These RCRA metals were generally detected at similar concentrations at all sediment sampling locations. In addition, cyanide was detected above its reporting limit in the Location 004 sediment duplicate sample. Each of these detections is included in the Risk Screening analysis in Section 5.1 of this report.

4.3 SURFACE WATER SAMPLE RESULTS

Table 7 below presents the analytical results of the surface water samples collected on April 4, 2011.

Table 7. CW, Surface Water Sample Results (µg/L)

Analyte	Loc 002 CW-01-SW-002 (5004-102) 4/4/2011	Loc 003 CW-01-SW-003 (5004-103) 4/4/2011	Loc 004 CW-01-SW-004 (5004-104) 4/4/2011	Loc 004-Dup CW-02-SW-004 (5004-104FD) 4/4/2011	Loc 005 CW-01-SW-005 (5004-106) 4/4/2011
Metals (RLAB Method 3123.1C)					
Antimony	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	1.0 U	1.1	1.0 U	1.0 U	1.0 U
Barium	164	180	122	119	159
Beryllium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Cobalt	1.0 U	1.0 U	1.5	1.5	1.0 U
Copper	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Lead	1.0 U	1.2	1.0 U	1.0 U	1.0 U
Manganese	100	399	7.4	6.1	86.3
Nickel	3.8	4.2	3.4	3.4	3.3
Selenium	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

Analyte	Loc 002 CW-01-SW-002 (5004-102) 4/4/2011	Loc 003 CW-01-SW-003 (5004-103) 4/4/2011	Loc 004 CW-01-SW-004 (5004-104) 4/4/2011	Loc 004-Dup CW-02-SW-004 (5004-104FD) 4/4/2011	Loc 005 CW-01-SW-005 (5004-106) 4/4/2011
Silver	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	1.0 U	1.8	1.0 U	1.0 U	1.0 U
Zinc	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Cyanide (RLAB Method 3135.2J)					
Cyanide	10 U	10 U	202	252	21

µg/L = micrograms per liter; RL = Reporting Limit; U = Not detected at or above RL; NA = Not Analyzed;
 UJ = Not detected at or above RL and RL is estimated. **Bold = Analyte detected above Reporting Limit**

As shown in Table 7, arsenic, barium, cobalt, lead, manganese, nickel, and/or vanadium were detected at or above reporting limits in all surface water samples. These detections are included in the surface water screening discussion in Section 5.2 of this report. It should be noted that the highest concentrations of these RCRA metals were detected from Location 003 (upgradient location) or Location 004 (downgradient location). The locations for the maximum RCRA metals detections are discussed in Section 5.2, as well as whether the detections represent contamination from the source area.

Significant cyanide concentrations were detected from the Location 004 (downgradient location) sample and its duplicate sample. Location 004 is described in Table 1 as the east fork of the unnamed tributary downgradient and west of the CW Process source area. The primary channel of the unnamed tributary is identified as the west fork in Table 1. The east fork (where Location 004 was sited) is not directly connected to the upgradient portion of the tributary, but appears to be fed by surface water flows from the West Field and surfacing groundwater from below the West Field (see photographs 34 and 35 in Appendix F). Location 005 is directly downgradient of the east and west forks of the unnamed tributary, following their merger. The cyanide detections at Locations 004 and 005 are discussed in Section 5.2 of this report.

4.4 GROUNDWATER SAMPLE RESULTS

Table 8 below presents the analytical results of the groundwater samples collected on April 4, 2011.

Table 8. CW, Groundwater Sample Results (µg/L)

Analyte	Existing Well CW-01-GW-010 (5004-111) 4/4/2011	Existing Well - Dup CW-02-GW-010 (5004-111FD) 4/4/2011	Loc 011 CW-01-GW-011 (5004-113) 4/4/2011	Loc 013 CW-01-GW-013 (5004-115) 4/4/2011
Metals (RLAB Method 3123.1C)				
Antimony	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	1.0 U	1.0 U	3.3	1.0 U
Barium	52.9	53.3	741	126
Beryllium	1.0 U	1.0 U	1.9	1.0 U
Cadmium	1.0 U	1.0 U	1.2	1.0 U
Chromium	2.0 U	2.0 U	20.4	2.0 U

Analyte	Existing Well CW-01-GW-010 (5004-111) 4/4/2011	Existing Well - Dup CW-02-GW-010 (5004-111FD) 4/4/2011	Loc 011 CW-01-GW-011 (5004-113) 4/4/2011	Loc 013 CW-01-GW-013 (5004-115) 4/4/2011
Cobalt	2.7	2.8	17.8	1.0 U
Copper	2.2	2.5	31.0	2.0 U
Lead	1.0 U	1.0 U	6.2	1.0 U
Manganese	12.7	16.3	2130	56.0
Nickel	4.4	4.6	55.8	4.6
Selenium	5.0 U	5.0 U	5.0 U	5.0 U
Silver	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	1.0 U	1.0 U	20.6	1.0 U
Zinc	2.0 U	2.0 U	29.6	2.0 U
Cyanide (RLAB Method 3135.2J)				
Cyanide	8340	10300	10 U	10 U

µg/L = micrograms per liter; RL = Reporting Limit; U = Not detected at or above RL; NA = Not Analyzed;
 UJ = Not detected at or above RL and RL is estimated. **Bold = Analyte detected above Reporting Limit**

As shown in Table 8, barium, cobalt, copper, manganese, and nickel were detected from the Existing Well sample and its duplicate sample. In addition, significant cyanide concentrations were detected. These detections are included in the groundwater screening in Section 5.3 of this report.

Several RCRA metals were detected from the Location 011 groundwater sample. Only barium, manganese, and nickel were detected from the Location 013 groundwater sample, and at significantly lower concentrations. It should be noted that the Location 011 groundwater sample was significantly more turbid at the time of sample collection. All maximum detections from groundwater sampling at Locations 011 and 013 are discussed in Section 5.3, along with a discussion of how the excess turbidity likely affects the sample results.

It should be noted that cyanide was not detected above its reporting limit in the Location 011 or 013 groundwater sample.

5. RISK SCREENING ANALYSIS

5.1 SEDIMENT SCREENING RESULTS

Onsite and offsite sediment was sampled during the Site Sampling Visit. Locations 001, 002, and 004 are downgradient from the source area, but within the property boundaries of the former CW Process site. These are considered in this section to be onsite locations. Location 003 is considered to be an offsite location, as it is located in the West Field, upgradient of the source area where the surface water tributary enters the West Field from offsite. Location 005 is an offsite, downgradient location, across 33rd Avenue and southwest of the source area. These two areas (onsite and offsite) are evaluated separately in this section.

Tables 9a through 9d below present the sediment detections screened against the November 2010 EPA Regional Screening Levels (RSLs). For each of the two areas (onsite and offsite), the maximum detected concentration of each analyte is used for screening purposes. Tables 9a and 9b present the screening for each of the areas against Industrial RSLs. Tables 9c and 9d present the screenings against Residential RSLs.

The RSLs are based on 1×10^{-6} and 1×10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs or a Hazard Quotient (HQ) of 1.0 for noncarcinogenic COCs. For each detected COC, the individual cancer risk and/or noncancer risk is calculated in the tables. The sum of cancer and noncancer risks are also provided in the tables.

Table 9a. CW, Onsite, Sediment Results Screening Against Industrial RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1×10^{-6})	Cancer Risk (1×10^{-4})	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	mg/kg	144	--	1.9E+05	--	--	0.001
Cadmium	mg/kg	2.1	9.3E+03	8.0E+02	0.000	0.000	0.003
Chromium (IV)	mg/kg	14.8	5.6E+00	3.1E+03	2.643	0.026	0.005
Lead	mg/kg	19.5	--	8.0E+02	--	--	0.024
Cyanide							
Cyanide	mg/kg	1.12	--	2.0E+04	--	--	0.000
Cumulative Risk:					2.643	0.026	0.033

For RCRA metals, the maximum chromium detection in onsite sediment samples (at Location 004) exceeded its 1×10^{-6} carcinogenic screening level. However, the chromium concentration detected in the sediment was total chromium. It is unlikely that the total chromium detected at the site is exclusively chromium (VI). However, to be conservative, the more toxic chromium (VI) screening level was selected for risk screening. Even with this conservative approach, the maximum detected concentration of chromium does not exceed the 1×10^{-4} carcinogenic screening level. In addition, none of the maximum detected RCRA metals individually or cumulatively exceed the noncarcinogenic HQ of 1.0.

The maximum concentration of cyanide detected in onsite sediment (1.12 mg/kg from Location 004) is significantly below its noncarcinogenic HQ of 1.0.

Table 9b. CW, Offsite, Sediment Results Screening Against Industrial RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁶)	Cancer Risk (1x10 ⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	mg/kg	139	--	1.9E+05	--	--	0.001
Cadmium	mg/kg	1.9	9.3E+03	8.0E+02	0.000	0.000	0.002
Chromium (IV)	mg/kg	12.3	5.6E+00	3.1E+03	2.196	0.022	0.004
Lead	mg/kg	18.2	--	8.0E+02	--	--	0.023
Cumulative Risk:					2.197	0.022	0.030

Each of the maximum RCRA metals detections in Table 9b above were from Location 003. Location 003 is upgradient of the CW Process source area, where the unnamed tributary enters the West Field property. The types and concentrations of RCRA metals at Location 003 are nearly identical to those detected from the onsite locations (shown in Table 9a). Therefore, the RCRA metals (specifically chromium) detected downgradient of the CW Process source area do not appear to be the result of contaminant migration from the CW Process source area.

Cyanide was not detected in the offsite, upgradient sediment sample (Location 003) or the offsite, downgradient sediment sample (Location 005).

Table 9c. CW, Onsite, Sediment Results Screening Against Residential RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁶)	Cancer Risk (1x10 ⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	mg/kg	144	--	1.5E+04	--	--	0.010
Cadmium	mg/kg	2.1	1.8E+03	7.0E+01	0.001	0.000	0.030
Chromium (IV)	mg/kg	14.8	2.9E-01	2.3E+02	51.034	0.510	0.064
Lead	mg/kg	19.5	--	4.0E+02	--	--	0.049
Cyanide							
Cyanide	mg/kg	1.12	--	1.6E+03	--	--	0.001
Cumulative Risk:					51.036	0.510	0.153

Table 9d. CW, Offsite, Sediment Results Screening Against Residential RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁶)	Cancer Risk (1x10 ⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	mg/kg	139	--	1.5E+04	--	--	0.009
Cadmium	mg/kg	1.9	1.8E+03	7.0E+01	0.001	0.000	0.027
Chromium (IV)	mg/kg	12.3	2.9E-01	2.3E+02	42.414	0.424	0.053
Lead	mg/kg	18.2	--	4.0E+02	--	--	0.046
Cumulative Risk:					42.415	0.424	0.135

As shown in Tables 9c and 9d, the RCRA metals detected in onsite sediment samples are nearly identical in concentration to those detected from the offsite, upgradient sediment sample from Location 003. Therefore, the concentrations detected do not appear to be directly attributable to contaminant migration from the CW Process source area. In addition, no RCRA metals were detected in excess of their 1×10^{-4} carcinogenic screening level or their noncarcinogenic HQ of 1.0.

The maximum cyanide detection in onsite sediment samples is significantly below its noncarcinogenic HQ of 1.0.

5.2 SURFACE WATER SCREENING RESULTS

Onsite and offsite surface water was sampled during the Site Sampling Visit. Locations 002 and 004 are downgradient from the source area, but within the property boundaries of the former CW Process site. These are considered in this section to be onsite locations. Location 003 is considered to be an offsite location, as it is located in the West Field, upgradient of the source area where the surface water tributary enters the West Field from offsite. Location 005 is an offsite, downgradient location, across 33rd Avenue and southwest of the source area. These two areas (onsite and offsite) are evaluated separately in this section.

Tables 10a and 10b below present the surface water detections screened against the November 2010 EPA Regional Screening Levels (RSLs). For each of the two areas, the maximum detected concentration of each analyte is used for screening purposes. Tables 10a and 10b present the contaminant screenings against Tap Water RSLs.

The Tap Water RSLs are based on 1×10^{-6} and 1×10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs, an HQ of 1.0 for noncarcinogenic COCs, or the EPA Maximum Contaminant Level (MCL). For each detected COC, the individual cancer risk and/or noncancer risk is calculated in Tables 10a and 10b. The sum of cancer and noncancer risks are also provided in the tables below.

Table 10a. CW, Onsite, Surface Water Results Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1×10^{-6})	Cancer Risk (1×10^{-4})	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	ug/L	164	--	7.3E+03	--	--	0.022
Cobalt	ug/L	1.5	--	1.1E+01	--	--	0.136
Manganese	ug/L	100	--	8.8E+02	--	--	0.114
Nickel	ug/L	3.8	--	7.3E+02	--	--	0.005
Cyanide							
Cyanide	ug/L	252	--	7.3E+02	--	--	0.345
Cumulative Risk:					0.000	0.000	0.623

None of the RCRA metals detected in onsite surface water samples are carcinogens, and none individually or cumulatively exceed an HQ of 1.0.

Cyanide was detected in the primary sample from Location 004 at 202 µg/L, and in the duplicate sample from Location 004 at 252 µg/L. When screened against the Tap Water RSLs, the maximum detected concentration of cyanide is below its HQ of 1.0. However, the Federal Maximum Contaminant Level (MCL) for cyanide in drinking water is 200 µg/L. The cyanide detections at Location 004 (in both the primary and duplicate sample) exceed the MCL.

The east fork of the unnamed tributary downgradient and west of the CW Process source area appears to be fed by surface water runoff from the West Field and groundwater surfacing from below the West Field. At the time of the Site Sampling Visit, groundwater seepage was the sole source of the water in this fork (see photographs 34 and 35 in Appendix F). Location 004 was sited immediately below the source of the groundwater seepage.

It should be noted that cyanide was not detected in the surface water from west fork of the unnamed tributary (Location 002). Cyanide was detected at significant concentrations in the Existing Well south of the source area. However, groundwater samples between the Existing Well and Location 004 could not be obtained with the Geoprobe unit (apparently due to swelling subsurface clays). As such, the source of the cyanide in the surface water samples at Location 004 could not be definitively determined.

Table 10b. CW, Offsite, Surface Water Results Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁻⁶)	Cancer Risk (1x10 ⁻⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Arsenic	ug/L	1.1	4.5E-02	1.1E+01	24.444	0.244	0.100
Barium	ug/L	180	--	7.3E+03	--	--	0.025
Lead	ug/L	1.2	--	1.5E+01	--	--	0.080
Manganese	ug/L	399	--	8.8E+02	--	--	0.453
Nickel	ug/L	4.2	--	7.3E+02	--	--	0.006
Vanadium	ug/L	1.8	--	1.8E+02	--	--	0.010
Cyanide							
Cyanide	ug/L	21	--	7.3E+02	--	--	0.029
Cumulative Risk:					24.444	0.244	0.703

Several RCRA metals were detected from offsite surface water sampling locations. However, none of the metals were detected in excess of their 1×10^{-4} carcinogenic screening level or their noncarcinogenic HQ of 1.0. It should also be noted that the majority of the metals and the highest concentrations were detected at Location 003 (upgradient location, where the unnamed tributary enters the West Field). For example, the sole carcinogenic risk driver (arsenic) was only detected at Location 003, and the primary noncarcinogenic risk driver (manganese) was detected at a concentration four times higher at Location 003 than Location 005.

Cyanide was not detected in the upgradient surface water from Location 003. However, cyanide was detected at 21 µg/L in the surface water sample from Location 005 (immediately downgradient from the confluence of the east and west forks of the unnamed tributary west of the source area). While the detection of 21 µg/L is significantly below the cyanide RSL and MCL, it does appear to be consistent with the detection of cyanide at Location 004 (upstream of Location 005).

5.3 GROUNDWATER SCREENING RESULTS

Groundwater samples could not be collected at the majority of the planned locations primarily due to lack of water production in the Geoprobe-driven screens (assumed to be caused by swelling subsurface clays). None of the planned samples west of the CW Process source area (between the source area and the unnamed tributary) could be collected. The only groundwater samples collected during this Site Sampling Visit were from an Existing Well (south of the source area), and from Locations 011 and 013 (southeast of the source area).

Tables 11a and 11b present the groundwater detections screened against the November 2010 EPA Regional Screening Levels (RSLs). For the purposes of this screening, the groundwater sampling locations are divided into two areas. The Existing Well is considered to be an onsite location. Locations 011 and 013 are southeast of the source area and presumed to be sidegradient. Locations 011 and 013 are screened separately. The maximum concentration of each analyte from each of these two areas is used to determine site risk. Tables 11a and 11b present the contaminant screenings against Tap Water RSLs.

Table 11a. CW, Onsite, Groundwater Results Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁻⁶)	Cancer Risk (1x10 ⁻⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Barium	ug/L	53.3	--	7.3E+03	--	--	0.007
Cobalt	ug/L	2.8	--	1.1E+01	--	--	0.255
Copper	ug/L	2.5	--	1.5E+03	--	--	0.002
Manganese	ug/L	16.3	--	8.8E+02	--	--	0.019
Nickel	ug/L	4.6	--	7.3E+02	--	--	0.006
Cyanide							
Cyanide	ug/L	10300	--	7.3E+02	--	--	14.110
Cumulative Risk:					0.000	0.000	14.398

None of the RCRA metals detected in Existing Well groundwater samples (both primary and duplicate samples) are carcinogens, and none individually or cumulatively exceed an HQ of 1.0.

However, as shown in Table 11a above, the cyanide detections significantly exceed an HQ of 1.0. The cyanide detection of the primary groundwater sample from the Existing Well was 8,340 µg/L, and the duplicate sample had a cyanide concentration of 10,300 µg/L. As a point of comparison, the cyanide concentration from this well during the June 7, 2004 sampling (as part of the Phase II Investigation) was reported as 9,640 µg/L.

Table 11b. CW, Locations 011 and 013, Groundwater Results Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10 ⁶)	Cancer Risk (1x10 ⁴)	Noncancer Risk (HQ=1)
RCRA Metals							
Arsenic	ug/L	3.3	4.5E-02	1.1E+01	73.333	0.733	0.300
Barium	ug/L	741	--	7.3E+03	--	--	0.102
Beryllium	ug/L	1.9	--	7.3E+01	--	--	0.026
Cadmium	ug/L	1.2	--	1.8E+01	--	--	0.067
Chromium (total)	ug/L	20.4	--	1.0E+02	--	--	0.204
Cobalt	ug/L	17.8	--	1.1E+01	--	--	1.618
Copper	ug/L	31	--	1.5E+03	--	--	0.021
Lead	ug/L	6.2	--	1.5E+01	--	--	0.413
Manganese	ug/L	2130	--	8.8E+02	--	--	2.420
Nickel	ug/L	55.8	--	7.3E+02	--	--	0.076
Vanadium	ug/L	20.6	--	1.8E+02	--	--	0.114
Zinc	ug/L	29.6	--	1.1E+04	--	--	0.003
Cumulative Risk:					73.333	0.733	5.364

Each of the maximum RCRA metals detections presented in Table 11b were from Location 011. As described in Table 4, the groundwater at Location 011 was extremely turbid with silt at the time of sampling. This excess silt is likely the cause of the elevated number and concentrations of the RCRA metals shown in Table 11b. Only three RCRA metals were detected from the groundwater sample at Location 013, which was significantly less turbid (barium at 126 µg/L, manganese at 56 µg/L, and nickel at 4.6 µg/L). Therefore, the screening results shown in Table 11b are not thought to represent actual risks from groundwater southeast of the source area.

As shown in Table 11b, cyanide was not detected above its reporting limit in either the Location 011 or 013 groundwater sample.

5.3 POTENTIAL RISK RECEPTORS

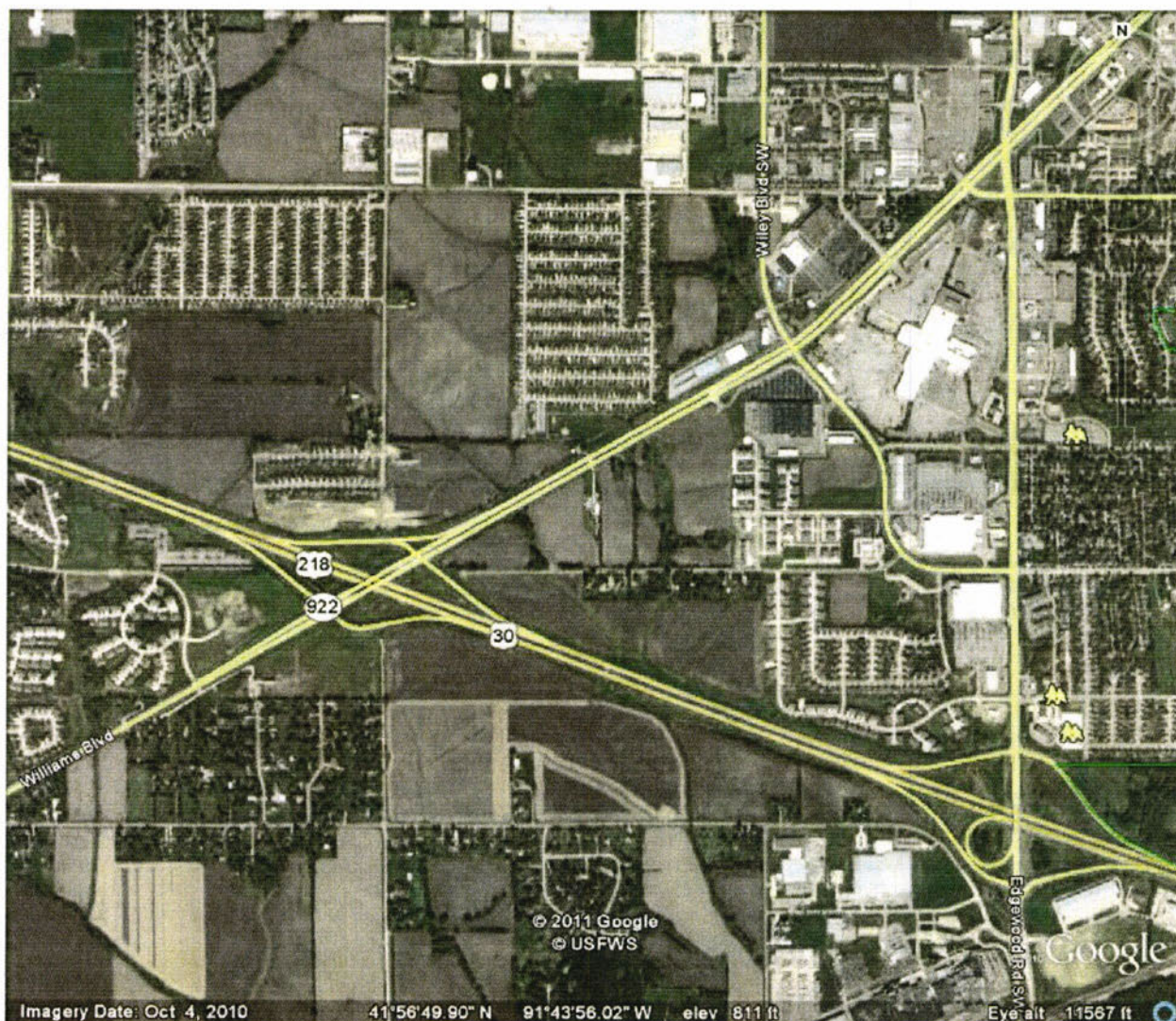
5.3.1 Adjacent Properties

The manufacturing and storage buildings associated with the former CW Process site are located on a north-south strip of land. The property surrounding the site is in agricultural and residential use. An aerial map from Google Earth, showing the neighboring property, is included as Map A below.



Map A. Google Earth Aerial. Scale: 1 inch = approximately 305 feet.

Booz Allen also used Google Earth Public to identify public use areas within approximately one mile of the site. A second Google Earth map with a larger scale (i.e., zoomed out from the Map A view) is included as Map B. Public use areas, such as schools, parks/recreation areas, and hospitals were selected to be shown as icons on the Google Earth map.



Map B. Google Earth Aerial. Scale: 1 inch = approximately 1,900 feet.

A summary of the sites shown on Map B (within one mile of the CW Process site) is included below in Table 12.

Table 12. Public Use Areas Near CW Process Site

Area	Distance From Site	Direction
Kaplan University Cedar Rapids	Approx. 0.95 miles	ENE
University of Phoenix – Cedar Rapids	Approx. 0.97 miles	ESE
ITT Technical Institute	Approx. 1.0 miles	SE
Beverly Park	Approx. 1.0 miles	SE

Note: distance is measured from approximate center of the CW Process site.

5.3.2 Potential Surface Water/Sediment Risk Receptors

The CW Process site is not surrounded by fencing or otherwise protected from onsite trespassers. The property is surrounded by agricultural and residential property. Surface water and sediment risk receptors include onsite trespassers/workers, as well as all receptors associated with downgradient water contact/use.

5.3.3 Potential Groundwater Risk Receptors

Based on the limited sampling associated with the 2004 Phase II investigation, groundwater beneath the site is thought to flow in a south-southwest direction.

Booz Allen contacted the IDNR, Iowa Geological and Water Survey section (IGS) to request identification of all groundwater wells within a one-mile radius of the CW Process site. The center of the site was selected as the search center point. The search results received from the Iowa Geological and Water Survey include a map and well information from various State databases. These results are included in Appendix C. Table 13 presents a summary of the well search.

Table 13. Groundwater Wells Within One Mile of the CW Process Site

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
	2142967	PWTS	Private well tracking system	~0.6 mi. WNW	Permitted well; Depth/completion date: UNK; Well use: heat pump
	2102334	PWTS	Private well tracking system	~0.65 mi. SE	Retired well; Depth/completion date: UNK; Well use: heat pump
	22692	GEOU	IGS well database	~0.75 mi. S	Private well; Depth 202 feet; Completion date: 1/1/1970
	21638	GEOU	IGS well database	~0.8 mi. S	Private well; Depth 180 feet; Completion date: 1/1/1969
	21202	GEOU	IGS well database	~0.85 mi. S	Private well; Depth 254 feet; Completion date: 8/23/1968
	1870	GEOU	IGS well database	~0.9 mi. S	Private well; Depth 338 feet; Completion date: 6/1/1943
	8921	GEOU	IGS well database	~0.65 mi. SW	Private well; Depth 330 feet; Completion date: 9/6/1957
	9638	GEOU	IGS well database	~0.7 mi. SW	Private well; Depth 294 feet; Completion date: 9/24/1957
	20375	GEOU	IGS well database	~0.8 mi. SW	Private well; Depth 231 feet; Completion date: 6/26/1967
	21947	GEOU	IGS well database	~0.85 mi. SW	Private well; Depth 317 feet; Completion date: 10/7/1969
	19477	GEOU	IGS well database	~0.95 mi. SW	Private well; Depth 249 feet; Completion date: 3/28/1967
	19278	GEOU	IGS well database	~0.5 mi. WSW	Private well; Depth 300 feet; Completion date: 7/1/1966

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
	2084258	PWTS	Private well tracking system	~0.9 mi. WSW	Active well; Depth 200 feet; Completion date: 1/1/1967; Well use: household
	25263	GEOU	IGS well database	~1.0 mi. WSW	Private well; Depth 282 feet; Completion date: 7/1/1972

* = Approximate distance, in miles, from the search radius source

** = Other relevant information from the database search (if reported).

Of the 14 wells identified in the well search, 12 are located south, southwest, or west-southwest of the CW Process site. Based on the limited information from the Phase II investigation, it appears that these 12 wells, which are not identified as inactive or retired, may be downgradient from the site. Each of these wells is at least ½ mile from the site.

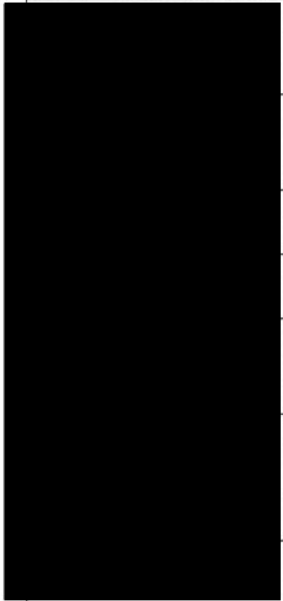
It should be noted that the well search results presented in Table 13 and Appendix C are not considered to be exhaustive of all groundwater wells within a one-mile radius of the site. It was reported by representatives of IGS and Iowa's Private Well Program that the requirement to register and/or permit wells in Iowa is relatively new. The databases will contain active public drinking water wells, industrial use wells, relatively new private wells, and some private wells that have associated water quality testing. However, it is assumed that private groundwater wells exist within the one-mile radius that are not identified in the well search.

The 2005 Phase II follow-up investigation report states that IGS was contacted to determine if any drinking water wells are located within 1,000 feet of the site. According to the report (and the current IGS well search), no private or public drinking water wells are located within 1,000 feet of the site. However, the Cedar Rapids water department, the County Sanitarian, and neighboring residents were also reportedly interviewed during the 2005 Phase II follow-up investigation. It was reported that the residences immediately east and south of the CW Process site obtain drinking water from private wells. Specifically, the residents at 5001 Williams Boulevard SW, 4471 33rd Avenue SW, 4531 33rd Avenue SW, and 4551 33rd Avenue SW were identified in the Phase II report as users of private wells for drinking water purposes.

On July 20 and 21, 2010, the EPA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Site Assessment Program identified and sampled nine private water supply wells downgradient from the CW Process site. These wells are described in Table 14 below.

Table 11. Private Water Supply Wells Identified and Sampled in July 2010

Owner / Telephone	Address	Distance/Direction from Site	Well Details	Other Information
	4551 33 rd Avenue SW	~0.1 mi. SSW	Depth and construction date unknown	Rental home
	4531 33 rd Avenue SW	~0.1 mi. S	Depth and construction date unknown	Reverse osmosis system for drinking water purposes

Owner / Telephone	Address	Distance/Direction from Site	Well Details	Other Information
	4501 33 rd Avenue SW	~0.1 mi. SSE	Depth: approx. 350 feet; Drilled: approx. 1963	Reverse osmosis system for drinking water purposes
	4471 33 rd Avenue SW	~0.15 mi. SE	Depth: approx. 220 feet Drilled: 1993	No treatment system; owners drink bottled water
	4401 33 rd Avenue SW	~0.2 mi. SE	Depth and construction date unknown	None
	3750 West Post Rd SW	~0.6 mi. SW	Depth: 318 feet Drilled: 1962	Water softener system only
	3800 West Post Rd SW	~0.65 mi. SW	Depth: approx. 100 feet Drilled: unknown	Sandpoint well; owner drinks bottled water
	3980 West Post Rd SW	~0.75 mi. SW	Depth: approx. 300 feet; Drilled: approx. 1960	Reverse osmosis and iron filter system for drinking water purposes
	5257 Beverly Rd SW	~0.75 mi. SW	Depth: approx. 470 feet; Drilled: unknown	Water softener system only

During the July 2010 CERCLA Site Assessment Program sampling, cyanides (total or dissolved) were not detected in any of the nine private water supply wells above the analytical reporting limit (0.01 mg/L). The subsequent report concluded that none of the wells have been impacted by the release at the CW Process site.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 RESULTS OF THE SITE SAMPLING VISIT

Sediment, surface water, and groundwater sampling was conducted at and near the CW Process site on April 4, 2011 to determine if contamination exists at the site. Samples were analyzed for RCRA metals and cyanide. Several deviations from the site-specific SAP occurred during the investigation. The most significant of these deviations was that none of the planned groundwater samples from the West Field (presumed downgradient from the CW Process source area) were collected. This was due to a lack of groundwater production within the Geoprobe-installed screens (assumed to be from swelling subsurface clays). The lack of groundwater sampling from the West Field significantly affects the integrity of the investigation, as the presence of groundwater contamination in the presumed groundwater flow direction cannot be determined.

Analytical Results and Risk Screening, Sediment. Several RCRA metals were detected in all sediment samples. None of the detected metals exceeded their 1×10^{-4} carcinogenic screening level or their noncarcinogenic HQ of 1.0 when screened against Industrial or Residential RSLs. In addition, the RCRA metals detected in onsite sediment samples are nearly identical in concentration to those detected from the offsite, upgradient sediment sample from Location 003. Therefore, the RCRA metals detected do not appear to be directly attributable to contaminant migration from the CW Process source area.

The maximum cyanide detections in onsite sediment samples are significantly below the noncarcinogenic HQ of 1.0 under an Industrial and Residential screening scenario.

Analytical Results and Risk Screening, Groundwater. An Existing Well was sampled during the April 4, 2011 Site Sampling Visit. The RCRA metals detected in this sample are not carcinogenic, and none individually or cumulatively exceeded an HQ of 1.0 when screened against Tap Water RSLs. However, significant concentrations of cyanide were detected in the groundwater from the Existing Well (HQ of 14.11).

The maximum RCRA metals concentrations from East Field groundwater samples (all from Location 011) did show a cumulative HQ of 5.364. However, the groundwater from Location 011 was extremely turbid. Groundwater from Location 013 was significantly less turbid and showed significantly lower metals concentrations. Cyanide was not detected in either of the East Field groundwater samples.

No groundwater samples could be collected from the West Field with the Geoprobe unit using the procedures presented in the SAP. As such, groundwater contamination in the presumed downgradient direction from the CW Process source area could not be assessed during this investigation. Because of the fine silt and swelling clays present in the subsurface, groundwater wells would have to be installed and developed to obtain samples.

Analytical Results and Risk Screening, Surface Water. Surface water samples were collected from downgradient and upgradient locations. None of the RCRA metals detected in surface water exceeded a 1×10^{-4} carcinogenic screening level or a noncarcinogenic HQ of 1.0

(individually or cumulatively) when screened against Tap Water RSLs. In addition, the majority of the RCRA metals and highest concentrations were detected from the upgradient location (Location 003).

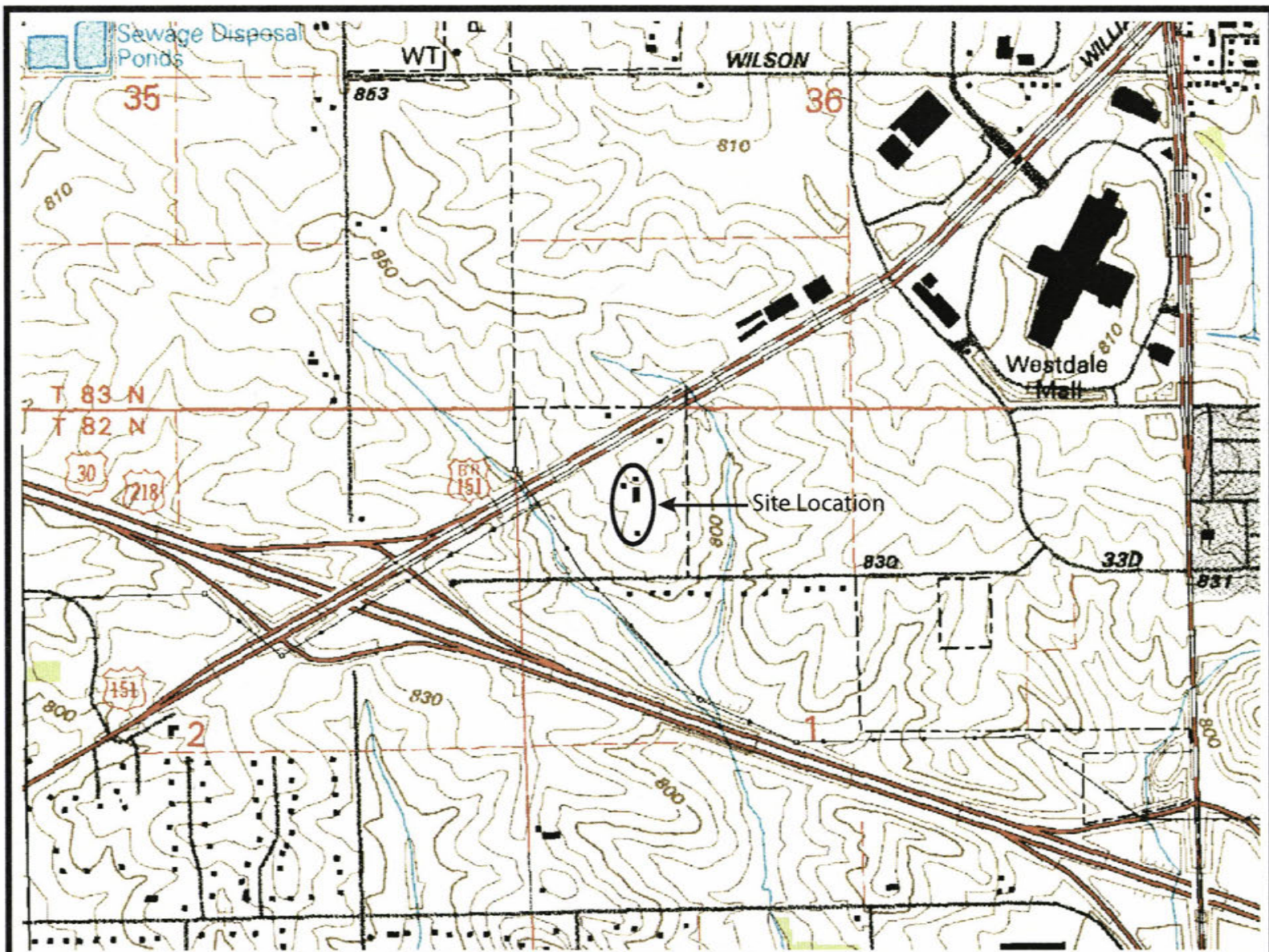
One of the surface water sampling locations (Location 004) is southwest of the CW Process source area, in the east fork of an unnamed tributary. At the time of the investigation, the sole source of water within this fork was groundwater seepage from beneath the West Field. Sample results from the primary and duplicate surface water samples at Location 004 show cyanide concentrations of 202 and 252 $\mu\text{g/L}$, respectively. These concentrations are below the Tap Water RSLs, but are above the Federal drinking water MCL of 200 $\mu\text{g/L}$. Location 004 is separated from the CW Process source area by the West Field, and as stated above, no groundwater samples from the West Field could be collected using Geoprobe-installed screens. Therefore, the source of the cyanide detections at Location 004 could not be determined.

A low level of cyanide (21 $\mu\text{g/L}$) was also detected from Location 005 (within the unnamed tributary, downgradient of all other locations and offsite).

Conclusions. None of the downgradient groundwater samples (from the West Field) could be obtained during the Site Sampling Visit. As such, the stated goals of the SAP (to further qualify the extent of cyanide and/or RCRA metals contamination in the groundwater and/or surface water/sediment, and determine if contamination has reached the property boundaries) were not definitively attained.

APPENDIX A

MAPS



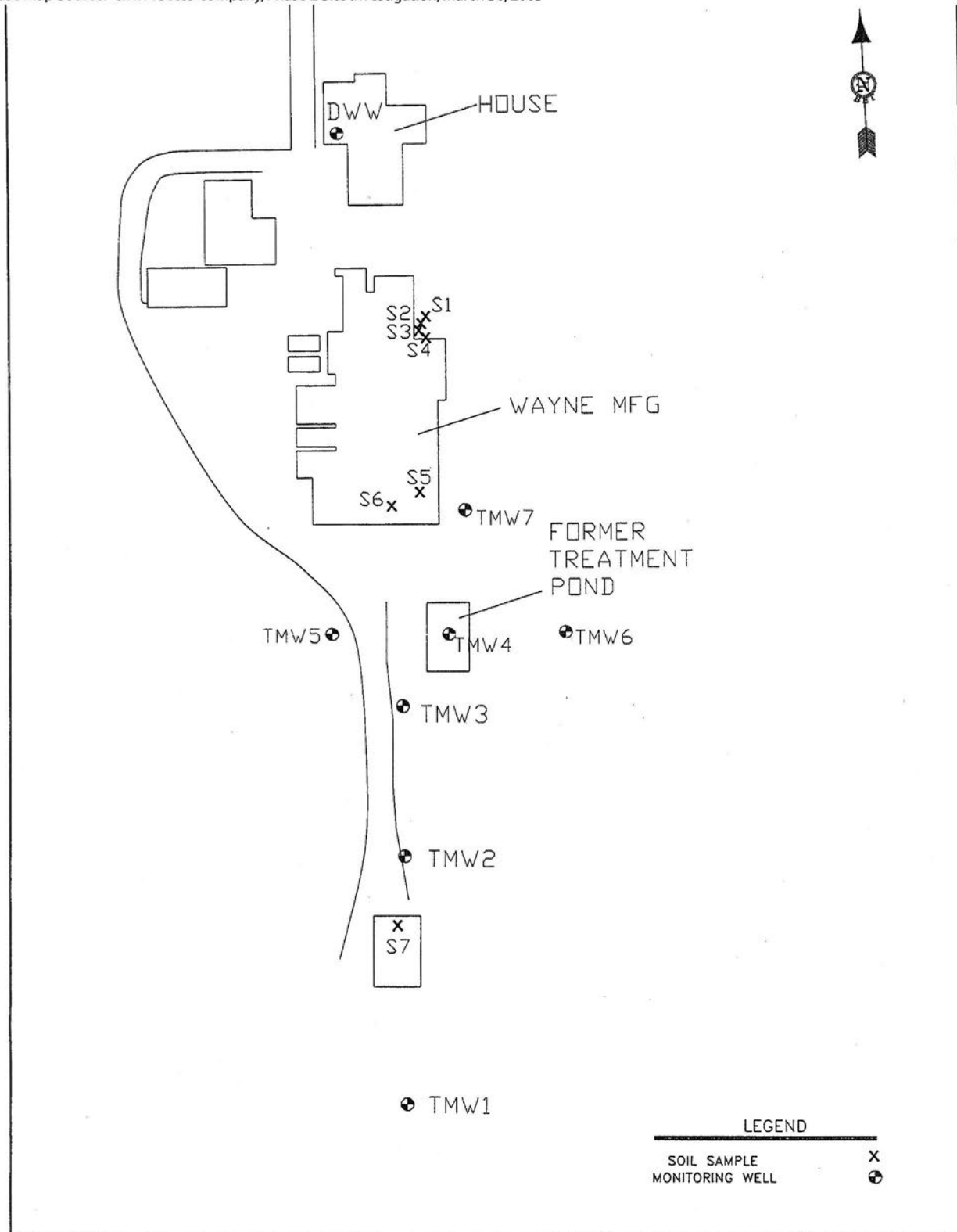
Base Map Source: Iowa Geographic Map Server, Iowa State University GIS Systems Support & Research Facility

Map 1: General Area Topographic Map
C.W.Process Company, Cedar Rapids, Iowa

Map 2: Phase 2 Sampling Map

C.W. Process Company, Cedar Rapids, Iowa

Base Map Source: C.W. Process Company, Phase 2 Site Investigation, March 30, 2005



SITE PLAN MAP
C.W. PROCESS COMPANY
5051 WILLIAMS BOULEVARD
CEDAR RAPIDS, IOWA

Blackhawk
Environmental
Testing

P.O. Box 85
Denver, IA 50622
(319) 984-6600

PROJECT #: 04432

FIGURE: 1

DRAWN BY: ORT

REVIEWED BY: (signature)

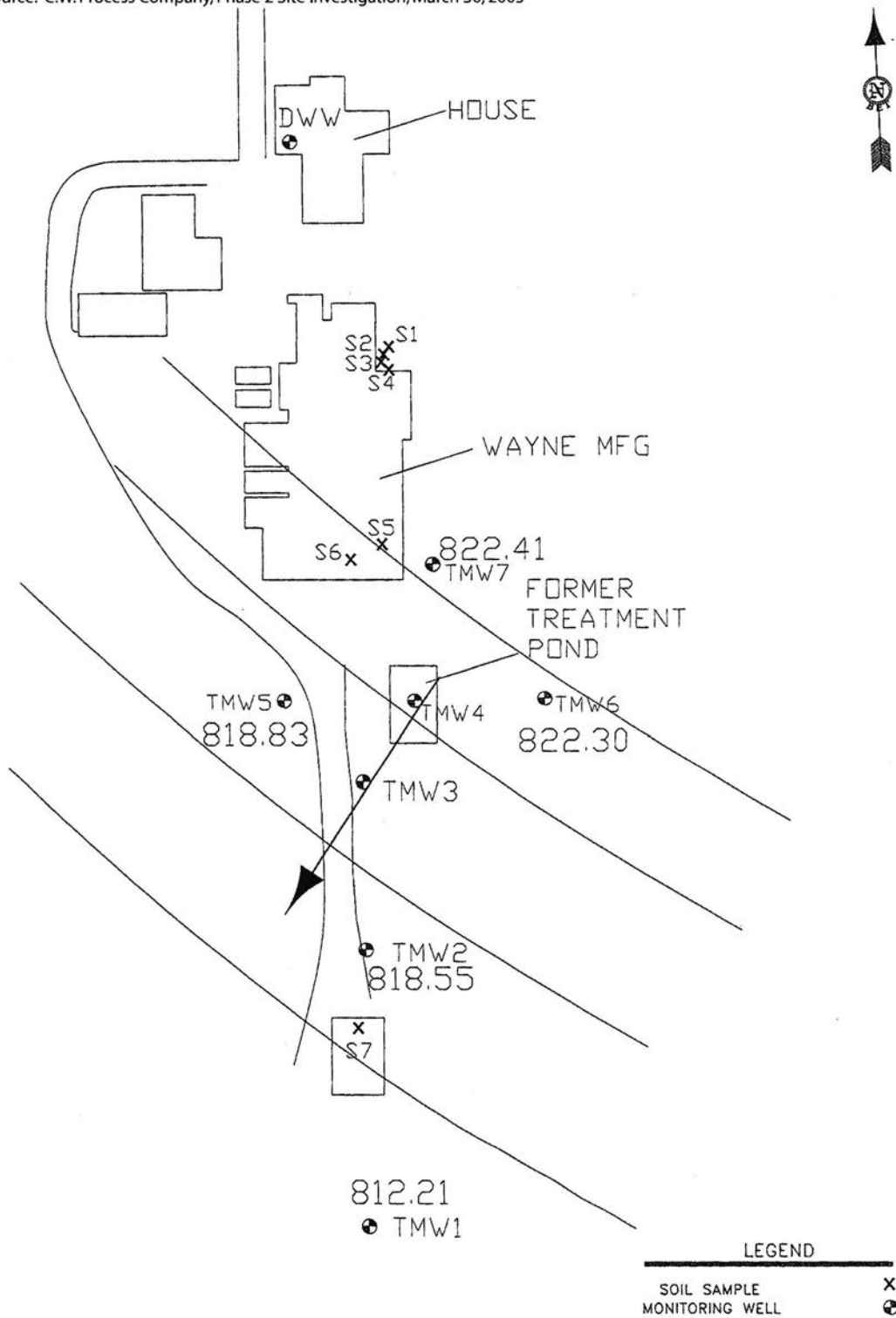
DATE: 7/16/04

SCALE: 1"=40'

Map 3: Groundwater Flow Map

C.W. Process Company, Cedar Rapids, Iowa

Base Map Source: C.W. Process Company, Phase 2 Site Investigation, March 30, 2005



GROUNDWATER FLOW DIRECTION
MAP (12/20/05 DATA)
C.W. PROCESS COMPANY
5051 WILLIAMS BOULEVARD
CEDAR RAPIDS, IOWA

Blackhawk
Environmental
Testing

P.O. Box 85
Denver, IA 50622
(319) 984-6600

PROJECT #: 04432

FIGURE: 4

DRAWN BY: ORT

REVIEWED BY: [Signature]

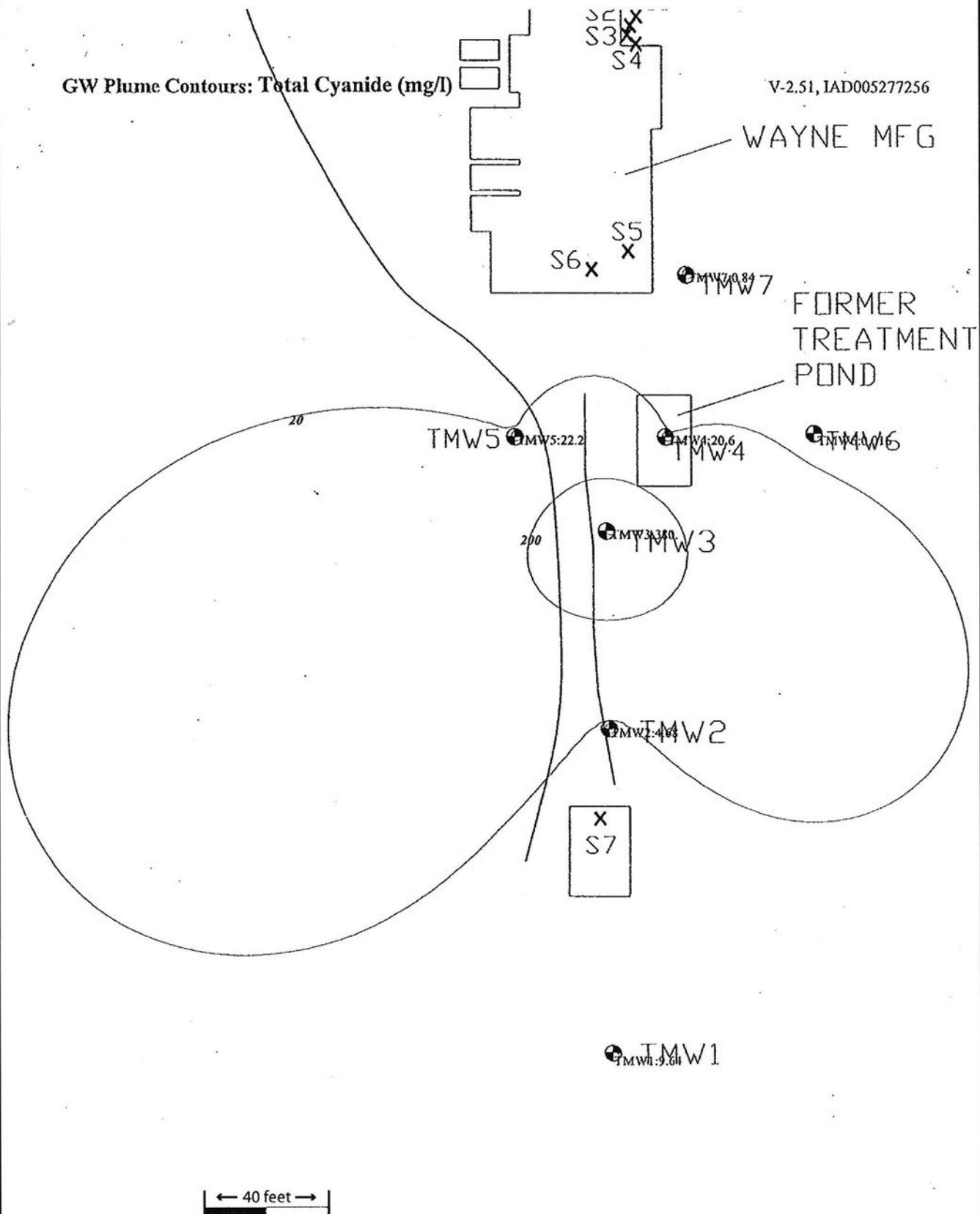
DATE: 7/16/04

SCALE: 1"=40'

Map 4: Phase 2 Plume Map

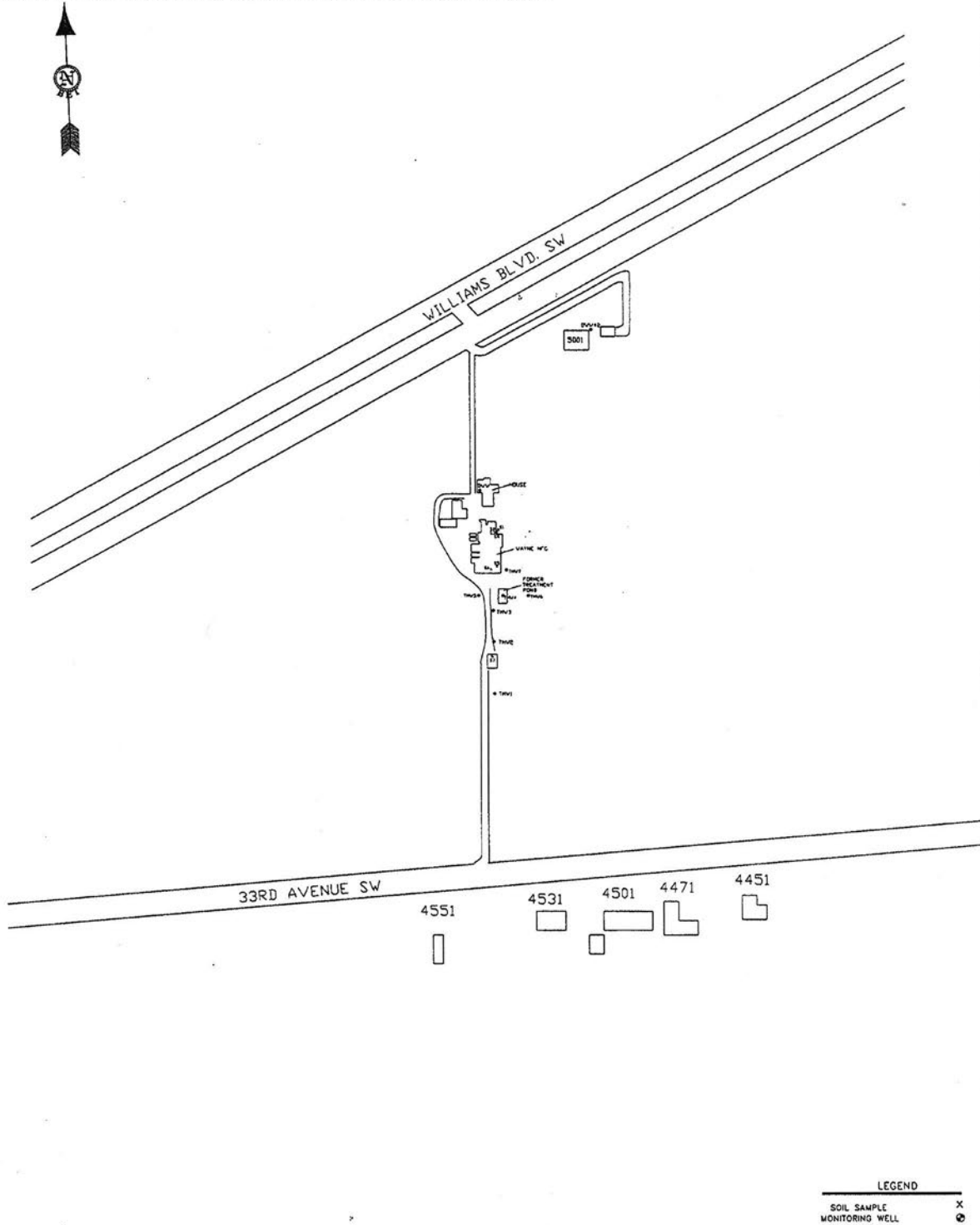
C.W. Process Company, Cedar Rapids, Iowa

Base Map Source: C.W. Process Company, Phase 2 Site Investigation, March 30, 2005



Map 5: Adjacent Properties Map
C.W.Process Company, Cedar Rapids, Iowa

Base Map Source: C.W.Process Company, Phase 2 Site Investigation, March 30, 2005



SITE VICINITY MAP

C.W. PROCESS COMPANY
5051 WILLIAMS BOULEVARD
CEDAR RAPIDS, IOWA

Blackhawk Environmental Testing

P.O. Box 85
Denver, IA 50622
(310) 984-6600

PROJECT #: 04432

FIGURE: 3

DRAWN BY:	SKT
-----------	-----

REVIEWED BY: (6)

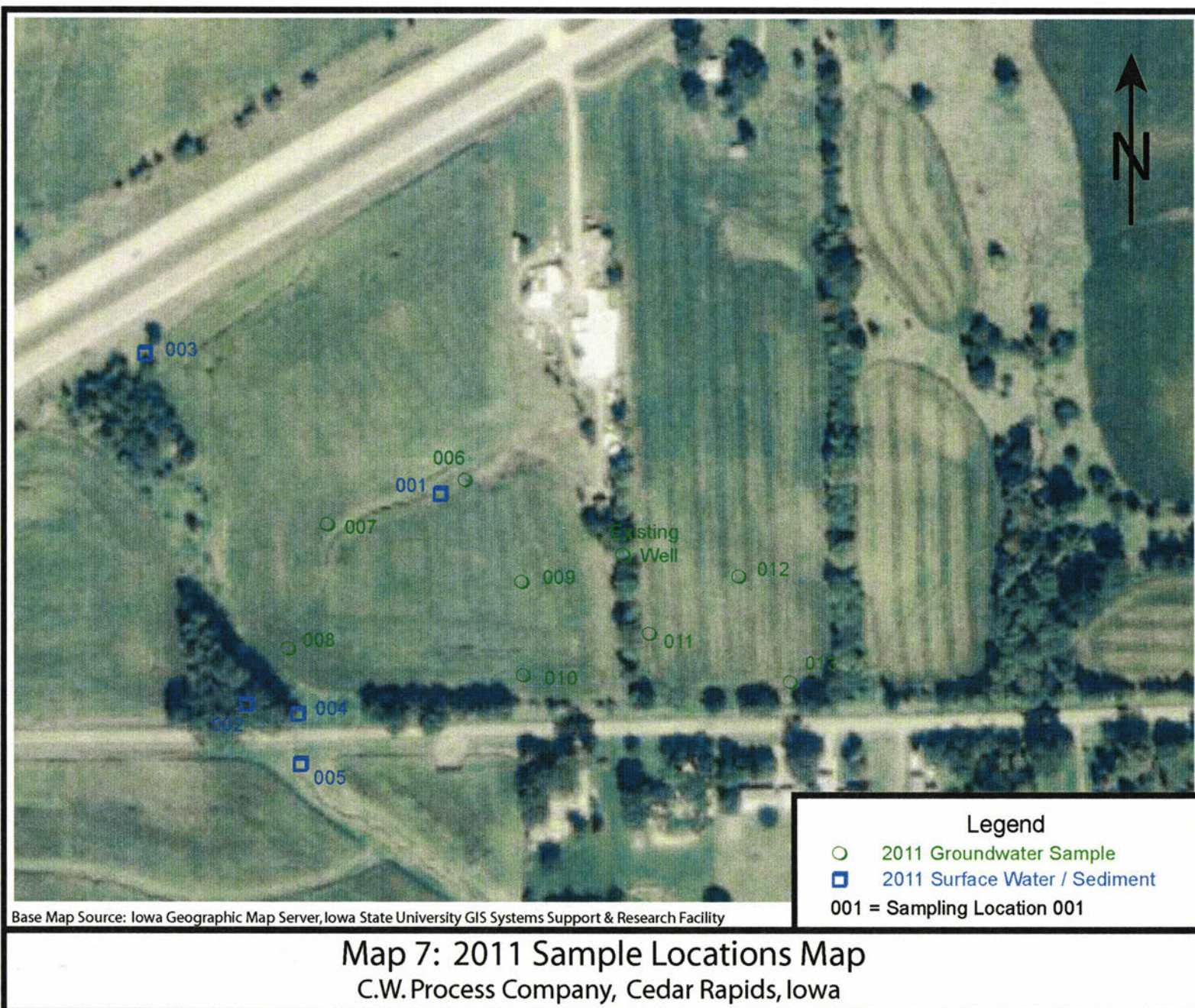
DATE:	3/30/05
-------	---------

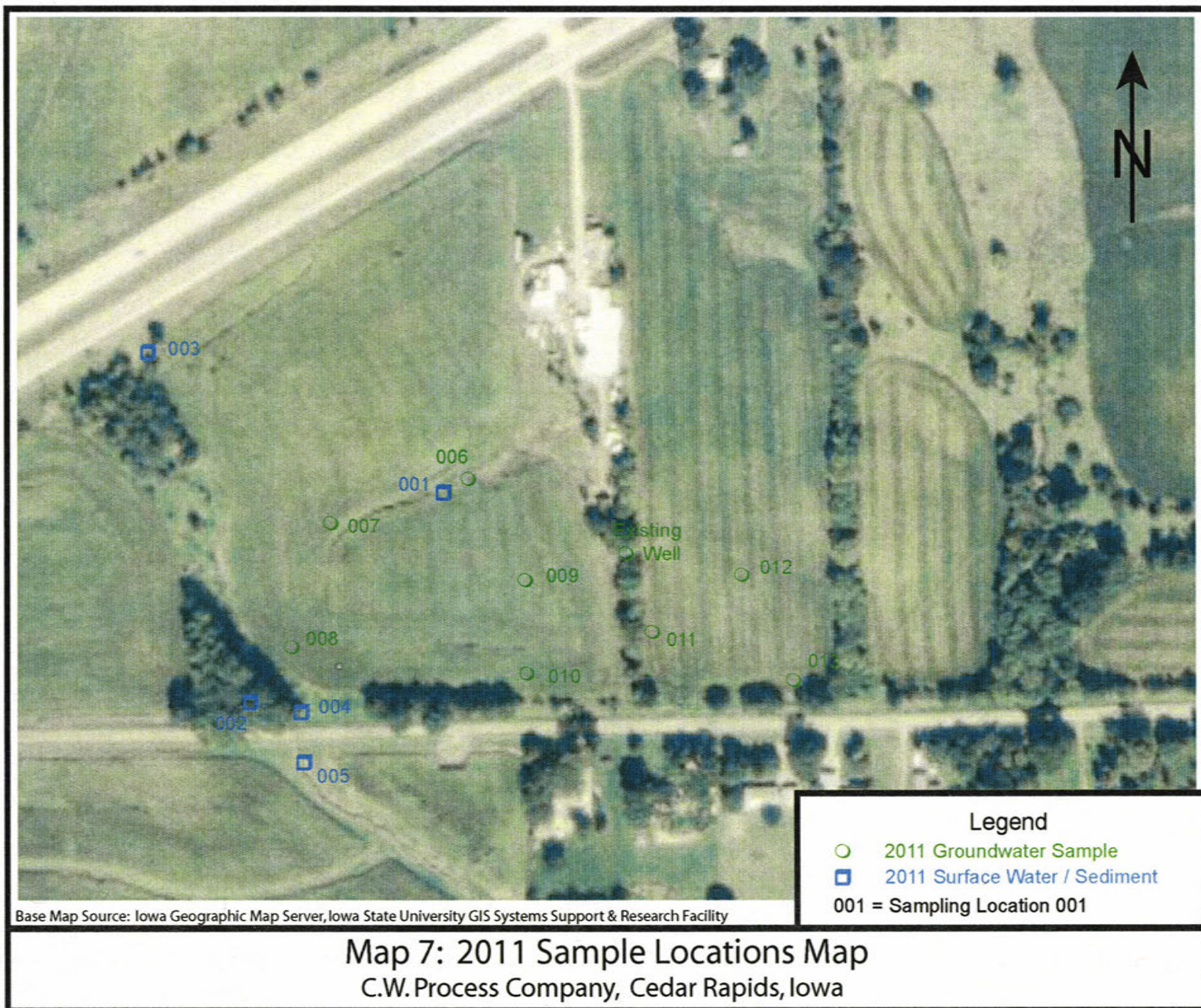
SCALE: 1"=200'



Base Map Source: Iowa Geographic Map Server, Iowa State University GIS Systems Support & Research Facility

Map 6: 2009 Aerial Photograph
C.W. Process Company, Cedar Rapids, Iowa





APPENDIX B

TELEPHONE CONVERSATION RECORD

Telephone Conversation Record – former CW Process Company

Note: The telephone contact number listed for the former owner ([REDACTED]) is disconnected. The Linn County Assessor's webpage (www.linn.iowaassessors.com) lists the site as being sold to [REDACTED] in 2006. No address, city, or telephone number is listed. However, there is a white pages home telephone listing for [REDACTED] in Cedar Rapids, IA.

- Wednesday, July 28, 2010; 1542. Called [REDACTED] at the home telephone listing of 319-363-1936. No answer. I left a message stating who I am, and that I am looking for the owner of the former CW Process Company site at 5051 Williams Blvd. I asked Mr. [REDACTED] to call me back at his convenience.
- Wednesday, July 28, 2010; 1703. Received a call from [REDACTED]. She stated that the "[REDACTED]" listed in the property record is not her husband. They don't own any property in that area of town.
- Thursday, July 29, 2010; 0928. Called Linn County Assessor at 319-892-5220 and asked if they have any contact information for the property owner. Their records show [REDACTED] [REDACTED] mailing address of 2245 Birchwood Drive, Cedar Rapids, IA.

Note: Internet searches revealed no published telephone listing for [REDACTED] in Cedar Rapids or in Iowa. No telephone number listed for the address of 2245 Birchwood Drive, Cedar Rapids, IA (reverse searches). Google search for "[REDACTED] - Cedar Rapids" found a business listing for [REDACTED] President, Gail Industries. Gail Industries is a designer and manufacturer of pumps. According to its webpage (www.gailpumps.com), the facility is located at 5051 Williams Blvd SW, Cedar Rapids, IA (address of the former CW Process Company).

- Thursday, July 29, 2010; 1446. Called Gail Industries at 319-294-2423 and spoke with a receptionist/office employee. I explained who I am and that I am an EPA contractor. I verified the address (she stated that the manufacturing side of the business is located at the former Wayne Manufacturing site). I explained that groundwater samples taken in 2004 showed cyanide contamination, and that EPA wants me to collect a few more groundwater samples to determine the extent of the contaminant reach. I asked if she knew who the property owner is, and/or if there is someone at the facility that I could speak with. She took my name and contact information, and stated that she would have someone call me back.
- Tuesday, August 3, 2010; 0939. Called Gail Industries back. The phone number is the sales office, and they just rent the facility. Receptionist said she'd pass my contact information to the Sales Manager when she came in and that the Sales Manager would call me back. As of August 9, 2010, no reply.

Note: Internet searches for "2245 Birchwood Drive" + "Cedar Rapids, IA" show a listing for Global Products, Inc. Same telephone number (319-294-2423) as found for Gail Industries. Search also shows a single family home at that address which is currently for sale.

Note: On August 9, 2010, I forwarded the TCR and all obtained information to the EPA TOCOR. No further attempts to contact the facility owner were performed at that time.

- Per e-mail from the EPA TOCOR: during the week of August 9, 2010, EPA sent a letter to [REDACTED] at the 5051 Williams Blvd SW, Cedar Rapids, IA address. On August 16, 2010, the letter was returned as undeliverable with no forwarding address.

On August 25, 2010, BAH sampling crews arrived at the CW Process site to perform the sampling. It was noted that the site was apparently abandoned, and all available land to the west was apparently sold or leased as crop land. At the time of BAH's arrival, the land to the west was in soybeans. The property to the east (the location of a couple of planned cross-gradient or upgradient samples) was also planted in soybeans. This was discussed with the EPA TOCOR, who decided that sampling (which would damage the crops) should be postponed.

- Per e-mail from the EPA TOCOR: during the week of August 30, 2010, EPA attorneys have identified the property owner to the west and was drafting access agreements for the subject property and the land to the west.
- Per discussion with EPA TOCOR on November 30, 2010, access agreements were sent to all property owners except the land to the east. Previous landowner to the east has recently passed, and (per the Linn County Assessor's page) the land is in trust.
- On November 30, 2010, I called the Linn County Assessor's office and asked if they had a list of trustees for the property to the east. The previous landowner's children are the trustees, and one (Mr. [REDACTED]) is a police officer in Cedar Rapids, IA.
- On November 30, 2010, I called Mr. [REDACTED] and left a message. He returned my call on December 1, 2010, and granted access to the property to the east.

On December 9, 2010, BAH sampling crews arrived at the CW Process site to attempt the sampling again. Ambient temperatures were below zero degrees Fahrenheit, and had been this cold for the entire week. The planned surface water and sediment samples could not be collected, as the surface waters were frozen solid. Groundwater sampling was attempted at all planned locations. However, Geoprobe refusal was met at approximately 16 feet below ground surface. Due to the relatively dry winter, groundwater was not encountered prior to Geoprobe refusal. This was discussed with the EPA TOCOR, who decided that sampling should be postponed until early Spring. During the December 9, 2010 event, no samples were collected.

- On March 7, 2011, I e-mailed Mr. [REDACTED] asked if we could have access to attempt sampling again during the first week of April 2011. Mr. [REDACTED] responded via e-mail on March 21, 2011 stating that we could proceed with the sampling on his property. He also relayed that the farmer was not planning on putting in crops until the end of April 2011.

APPENDIX C

WELL SEARCH RESULTS, ONE-MILE RADIUS

Topo of Sec. 1

Westdale Mill

Tank Creek

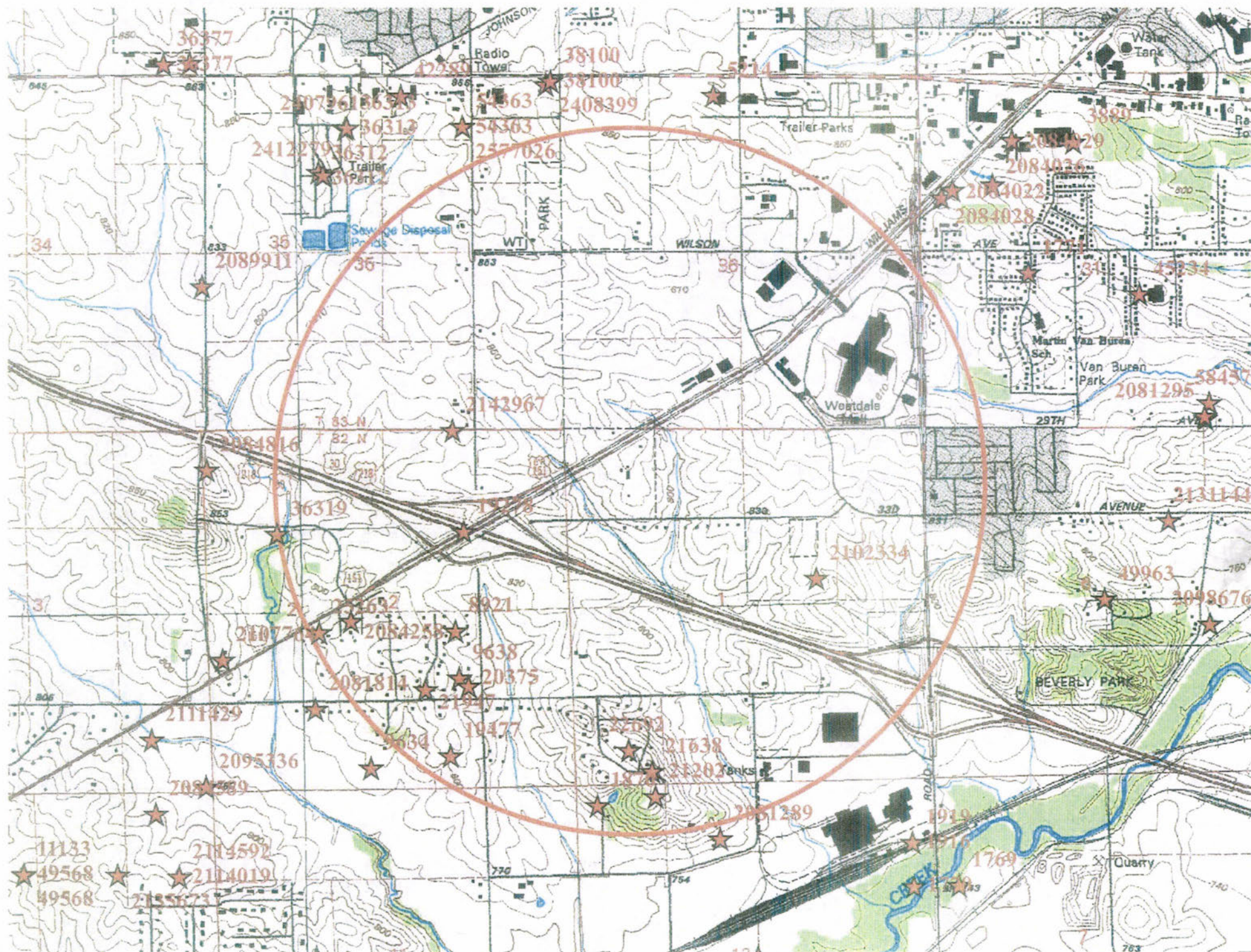
29N

7E

BEVERLY

ROAD

An aerial photograph of a large industrial facility, possibly a refinery or chemical plant. The image shows a complex network of white pipes and roads crisscrossing a dark, vegetated area. Several large, light-colored industrial buildings are visible, along with numerous storage tanks and smaller structures. The facility is bordered by green fields and some residential areas in the background.



Former CW Process Co.

OBJECTID	MapID	WellID	ID_SRC_FLD	DATASRC	WELL_TYPE	LOCATION	COUNTY	EST_LOC_AC
177616	177616	25263	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SW, NE, NW	Linn	Calc. +/- 140 m.
177757	177757	2084258	wellnmbr	PWTS	Private well tracking system	T. 82 N., R. 8W., Sec. 2, SE, NE, NE, NW, SE	Linn	nom. +/- 25m.
177787	177787	2142967	wellnmbr	PWTS	Private well tracking system	T. 83 N., R. 8W., Sec. 35, SW, SE, NE, SW, SE	Linn	nom. +/- 25m.
177994	177994	19278	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, NE, SW, NE, NE	Linn	Calc. +/- 70 m.
178095	178095	21947	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SE, NW, NW, SE	Linn	Calc. +/- 70 m.
178113	178113	8921	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SE, NW, NE	Linn	Calc. +/- 140 m.
178248	178248	9638	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SE, NW, NE	Linn	Calc. +/- 140 m.
178339	178339	20375	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SE, NW, SE, SE	Linn	Calc. +/- 70 m.
178365	178365	19477	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 2, SE, SW, NE, NW	Linn	Calc. +/- 70 m.
178956	178956	1870	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 12, NW, NW, NW	Linn	Calc. +/- 140 m.
178976	178976	22692	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 1, SW, SW, SE, NW	Linn	Calc. +/- 70 m.
179065	179065	21638	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 1, SW, SW, SE, SE	Linn	Calc. +/- 70 m.
179113	179113	21202	wnumber	GEOU	IGS well database	T. 82N., R. 8W., Sec. 12, SW, SW, SE, NE	Linn	Calc. +/- 70 m.
179334	179334	2102334	wellnmbr	PWTS	Private well tracking system	T. 82 N., R. 8W., Sec. 1, NE, SE, SW, NE, SE	Linn	nom. +/- 25m.

DEPTH	C_P_DATE	OWNER NAME	OTHER_INFO	XCOORD	YCOORD
282	07/01/1972		Bedrock depth: 185; Well type: Private	603682.320000000000	4643995.220000000000
200	01/01/1967		Status: Active; Well use: Household	603827.294698000000	4644047.423370000000
0			Status: Permitted; Well use: Heat pump	604287.276545000000	4644919.263930000000
300	07/01/1966		Bedrock depth: 100; Well type: Private	604336.740000000000	4644456.430000000000
317	10/07/1969		Bedrock depth: 270; Well type: Private	604164.380000000000	4643735.910000000000
330	09/06/1957		Bedrock depth: 272; Well type: Private	604299.570000000000	4644002.230000000000
294	09/24/1957		Bedrock depth: 208; Well type: Private	604317.380000000000	4643788.810000000000
231	06/26/1967		Bedrock depth: 208; Well type: Private	604359.070000000000	4643751.210000000000
249	03/28/1967		Bedrock depth: 213; Well type: Private	604277.000000000000	4643435.340000000000
338	06/01/1943		Bedrock depth: 235; Well type: Private	604941.200000000000	4643207.090000000000
202	01/01/1970		Bedrock depth: 127; Well type: Private	605086.410000000000	4643460.170000000000
180	01/01/1969		Bedrock depth: 139; Well type: Private	605191.100000000000	4643363.370000000000
254	08/23/1968		Bedrock depth: 123; Well type: Private	605205.780000000000	4643249.090000000000
0			Status: Retired; Well use: Heat pump	605936.210273000000	4644241.806510000000

HLINK	DISPERSE	BEST_REC
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=25263	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2084258&reportName=WellPrintout	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2142967&reportName=WellPrintout	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=19278	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=21947	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=8921	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=9638	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=20375	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=19477	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=1870	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=22692	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=21638	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=21202	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2102334&reportName=WellPrintout	0	-1

PUB_ACCESS PRIV_ACCES

-1 -1

-1 -1

-1 -1

-1 -1

-1 -1

-1 -1

-1 -1

-1 -1

-1 -1

$$\begin{array}{cc} -1 & -1 \\ -1 & -1 \end{array}$$
$$\begin{array}{cc} -1 & -1 \\ -1 & -1 \end{array}$$
$$\begin{array}{cc} 1 & 1 \\ -1 & -1 \end{array}$$
$$\begin{pmatrix} 1 & 1 \\ -1 & -1 \end{pmatrix}$$
$$\begin{array}{cc} -1 & -1 \\ -1 & -1 \end{array}$$

APPENDIX D
GLOBAL POSITIONING SYSTEM DATA

exp0412a.txt

Export Version 5.00 5.00 Started.

Using Export Setup: Configurable ASCII

The following files in S:\Trimble GPS Files\John Dixon 164741 will be exported:

04062011.cor

04052011.cor

04042011.cor

Reading file 04062011.cor

17 position(s) read.

A total of 8 feature(s) read or created.

8 point feature(s) read.

File 04062011.cor read successfully

Reading file 04052011.cor

14 position(s) read.

A total of 7 feature(s) read or created.

7 point feature(s) read.

File 04052011.cor read successfully

Reading file 04042011.cor

22 position(s) read.

A total of 11 feature(s) read or created.

Of these, 1 feature(s) have no positions.

11 point feature(s) read.

File 04042011.cor read successfully

3 input file(s) read.

53 position(s) read.

A total of 26 feature(s) read or created.

Of these, 1 feature(s) have no positions.

26 point feature(s) read.

26 feature(s) exported.

3 output file(s) written to S:\Trimble GPS Files\John Dixon 164741\Export

s:\trimble gps files\john dixon 164741\export\04062011\point_generic.xls

s:\trimble gps files\john dixon 164741\export\04052011\point_generic.xls

s:\trimble gps files\john dixon 164741\export\04042011\point_generic.xls

The file S:\Trimble GPS Files\John Dixon 164741\Export\04062011.inf contains information on the settings used.

The file C:\Documents and Settings\All Users\Application Data\Trimble\GPS Pathfinder Office\Config\expfiles.txt contains a list of the files created.

04062011.inf

Setup Used: Configurable ASCII
Export Format: Configurable ASCII
Data Type: Features
Feature Selection: Export All Features
Not In Feature Positions: Not Used
Export Notes: No
Export Velocity Records: No
Export Sensor Records: No
File Option: One File Set Per Feature
Templates: Export1
File Structure: DOS
Export Menu Attribute As: Attribute Value
Generated Attributes:

Max PDOP
Max HDOP
Corr Type
Rcvr Type
GPS Date
GPS Time
Update Status
GPS Height
Vert Prec
Horz Prec
Std Dev
Latitude
Longitude
Northing
Easting
Point_ID
GPS Length
GPS 3DLength
Avg Vert Prec
Avg Horz Prec
Worst Vert Prec
Worst Horz Prec
Line_ID
GPS Area
GPS Perimeter
GPS 3DPerimeter
Avg Vert Prec
Avg Horz Prec
Worst Vert Prec
Worst Horz Prec
Area_ID

Position Filter Details:
Filter By: GPS Criteria
Maximum PDOP: Any
Maximum HDOP: Any
Min Number Of SVs: 2D (3 or more SVs)
Uncorrected: Yes
P(Y) Code: Yes
Real-time SBAS: Yes
Real-time Code: Yes
Postprocessed Code: Yes
Real-time Carrier Float: Yes
Postprocessed Carrier Float: Yes
RTK Fixed: Yes
Postprocessed Carrier Fixed: Yes
Non-GPS: Yes
Coordinate System: US State Plane 1983
Coordinate Zone: Iowa South 1402
Datum: NAD 1983 (Conus)
Coordinate Units: Feet
Altitude Units: Feet

Altitude Reference: MSL
 Geoid Model: DMA 10x10 (Global)
 Include Altitude: No
 Distance Units: Feet
 Area Units: Square Feet
 Velocity Units: Miles Per Hour
 Precision Units: Feet
 North/East DP: 3
 Altitude DP: 3
 Distance DP: 3
 Area DP: 3

Data Dictionary

----- STREAM_FLAG - Point Feature

Stream ID - String, Length = 25
 Flag # - Numeric, DP = 0, Min = 1, Max = 200, Default = 1
 Bank - Menu
 Left, CodeValue1 = , CodeValue2 =
 Right, CodeValue1 = , CodeValue2 =
 Flag Type - Menu
 CL X-ing, CodeValue1 = , CodeValue2 =
 AR X-ing, CodeValue1 = , CodeValue2 =
 End, CodeValue1 = , CodeValue2 =
 Other, CodeValue1 = , CodeValue2 =
 Stream Type - Menu
 Perennial, CodeValue1 = , CodeValue2 =
 Intermittent, CodeValue1 = , CodeValue2 =
 Ephemeral, CodeValue1 = , CodeValue2 =
 Per/Int, CodeValue1 = , CodeValue2 =
 Int/Eph, CodeValue1 = , CodeValue2 =
 Channel Width - Numeric, DP = 2, Min = 0.00, Max = 1000.00, Default = 0.00
 Units - Menu
 Feet, CodeValue1 = , CodeValue2 =
 Inches, CodeValue1 = , CodeValue2 =
 Culvert - Menu
 Inflow, CodeValue1 = , CodeValue2 =
 Edge of Road, CodeValue1 = , CodeValue2 =
 Outflow, CodeValue1 = , CodeValue2 =
 Culvert (inches) - Numeric, DP = 0, Min = 0, Max = 120, Default = 0
 Culvert Material - Menu
 Metal, CodeValue1 = , CodeValue2 =
 Concrete, CodeValue1 = , CodeValue2 =
 Plastic, CodeValue1 = , CodeValue2 =
 Parallel Culvert - Menu
 Yes, CodeValue1 = , CodeValue2 =
 No, CodeValue1 = , CodeValue2 =
 Bridge - Menu
 Yes, CodeValue1 = , CodeValue2 =
 No, CodeValue1 = , CodeValue2 =
 Stream Name (Common) - String, Length = 30
 Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Corr Type - String, Length = 36
 Rcvr Type - String, Length = 36
 GPS Date - Date
 GPS Time - Time
 Update Status - String, Length = 36
 GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
 Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

04062011.inf

Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
 WETLAND_FLAG - Point Feature
 Wetland ID - String, Length = 25
 Flag # - Numeric, DP = 0, Min = 1, Max = 200, Default = 1
 Flag Type - Menu
 CL X-ing, CodeValue1 = , CodeValue2 =
 AR X-ing, CodeValue1 = , CodeValue2 =
 End, CodeValue1 = , CodeValue2 =
 Open End, CodeValue1 = , CodeValue2 =
 End/Open End, CodeValue1 = , CodeValue2 =
 Upland, CodeValue1 = , CodeValue2 =
 Type 1 - Menu
 PEM, CodeValue1 = , CodeValue2 =
 PSS, CodeValue1 = , CodeValue2 =
 PFO, CodeValue1 = , CodeValue2 =
 POW, CodeValue1 = , CodeValue2 =
 PUB, CodeValue1 = , CodeValue2 =
 Upland, CodeValue1 = , CodeValue2 =
 Type 2 - Menu
 PEM, CodeValue1 = , CodeValue2 =
 PSS, CodeValue1 = , CodeValue2 =
 PFO, CodeValue1 = , CodeValue2 =
 POW, CodeValue1 = , CodeValue2 =
 PUB, CodeValue1 = , CodeValue2 =
 Upland, CodeValue1 = , CodeValue2 =
 Jurisdiction - Menu
 Abutting, CodeValue1 = , CodeValue2 =
 Adjacent, CodeValue1 = , CodeValue2 =
 Isolated, CodeValue1 = , CodeValue2 =
 Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Corr Type - String, Length = 36
 Rcvr Type - String, Length = 36
 GPS Date - Date
 GPS Time - Time
 Update Status - String, Length = 36
 GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
 Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
 POND_FLAG - Point Feature
 Pond ID - String, Length = 25
 Flag # - Numeric, DP = 0, Min = 1, Max = 100, Default = 1
 Flag Type - Menu
 CL X-ing, CodeValue1 = , CodeValue2 =
 AR X-ing, CodeValue1 = , CodeValue2 =
 End, CodeValue1 = , CodeValue2 =
 Open End, CodeValue1 = , CodeValue2 =
 Other, CodeValue1 = , CodeValue2 =
 Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Corr Type - String, Length = 36
 Rcvr Type - String, Length = 36
 GPS Date - Date
 GPS Time - Time
 Update Status - String, Length = 36
 GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

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Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
 Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

GROUNDWATER - Point Feature

Groundwater ID - String, Length = 16
 Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Corr Type - String, Length = 36
 Rcvr Type - String, Length = 36
 GPS Date - Date
 GPS Time - Time
 Update Status - String, Length = 36
 GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
 Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

CENTERLINE - Point Feature

Line ID - String, Length = 16
 Type - Menu
 Gas, CodeValue1 = , CodeValue2 =
 Electric, CodeValue1 = , CodeValue2 =
 Other, CodeValue1 = , CodeValue2 =
 Station # - String, Length = 10
 Proposed Attribute - Menu
 Start, CodeValue1 = , CodeValue2 =
 End, CodeValue1 = , CodeValue2 =
 p.i., CodeValue1 = , CodeValue2 =
 Existing Attribute - Menu
 Gas Marker, CodeValue1 = , CodeValue2 =
 Test Stand, CodeValue1 = , CodeValue2 =
 Exposed Pipe, CodeValue1 = , CodeValue2 =
 Tie-In, CodeValue1 = , CodeValue2 =
 Overhead Line, CodeValue1 = , CodeValue2 =
 Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Corr Type - String, Length = 36
 Rcvr Type - String, Length = 36
 GPS Date - Date
 GPS Time - Time
 Update Status - String, Length = 36
 GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
 Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
 Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
 Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

ACCESS_ROAD - Point Feature

Access Road ID - String, Length = 25
 Type - Menu
 Existing, CodeValue1 = , CodeValue2 =
 New, CodeValue1 = , CodeValue2 =
 Other, CodeValue1 = , CodeValue2 =
 Condition - Menu
 Paved, CodeValue1 = , CodeValue2 =
 Gravel, CodeValue1 = , CodeValue2 =
 Dirt, CodeValue1 = , CodeValue2 =
 Grass, CodeValue1 = , CodeValue2 =
 Agricultural Field, CodeValue1 = , CodeValue2 =

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    other, CodeValue1 = , CodeValue2 =
Culvert - Menu
    Inflow, CodeValue1 = , CodeValue2 =
    Edge of Road, CodeValue1 = , CodeValue2 =
    Outflow, CodeValue1 = , CodeValue2 =
Culvert (inches) - Numeric, DP = 0, Min = 0, Max = 120, Default = 0
Culvert Material - Menu
    Metal, CodeValue1 = , CodeValue2 =
    Concrete, CodeValue1 = , CodeValue2 =
    Plastic, CodeValue1 = , CodeValue2 =
Parallel Culvert - Menu
    Yes, CodeValue1 = , CodeValue2 =
    No, CodeValue1 = , CodeValue2 =
Bridge - Menu
    Yes, CodeValue1 = , CodeValue2 =
    No, CodeValue1 = , CodeValue2 =
Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Corr Type - String, Length = 36
Rcvr Type - String, Length = 36
GPS Date - Date
GPS Time - Time
Update Status - String, Length = 36
GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
WELL - Point Feature
    well ID - String, Length = 25
    Type - Menu
        Existing, CodeValue1 = , CodeValue2 =
        New, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
STRUCTURE - Point Feature
    Structure ID - String, Length = 25
    Type - Menu
        Residence, CodeValue1 = , CodeValue2 =
        Garage, CodeValue1 = , CodeValue2 =
        Barn, CodeValue1 = , CodeValue2 =
        water Well, CodeValue1 = , CodeValue2 =
        Springhouse, CodeValue1 = , CodeValue2 =
        other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36

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GPS Date - Date
GPS Time - Time
Update Status - String, Length = 36
GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
WORK_SPACE - Point Feature
Work Space ID - String, Length = 25
Type - Menu
  Extra Work Space, CodeValue1 = , CodeValue2 =
  Pipeyard, CodeValue1 = , CodeValue2 =
  Staging Area, CodeValue1 = , CodeValue2 =
  Storage Yard, CodeValue1 = , CodeValue2 =
  Wellpad, CodeValue1 = , CodeValue2 =
  Other, CodeValue1 = , CodeValue2 =
Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Corr Type - String, Length = 36
Rcvr Type - String, Length = 36
GPS Date - Date
GPS Time - Time
Update Status - String, Length = 36
GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
CULTURAL_RESOURCE - Point Feature
Resource ID - String, Length = 16
Type - Menu
  Cemetery, CodeValue1 = , CodeValue2 =
  Rock Shelter, CodeValue1 = , CodeValue2 =
  Structure, CodeValue1 = , CodeValue2 =
  Other, CodeValue1 = , CodeValue2 =
Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Corr Type - String, Length = 36
Rcvr Type - String, Length = 36
GPS Date - Date
GPS Time - Time
Update Status - String, Length = 36
GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
PHOTO_LOCATION - Point Feature
Photo ID - String, Length = 16
Direction 1 - Menu
  N, CodeValue1 = , CodeValue2 =
  S, CodeValue1 = , CodeValue2 =
  E, CodeValue1 = , CodeValue2 =
  W, CodeValue1 = , CodeValue2 =
  NE, CodeValue1 = , CodeValue2 =
  SE, CodeValue1 = , CodeValue2 =

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NW, CodeValue1 = , CodeValue2 =
SW, CodeValue1 = , CodeValue2 =

Direction 2 - Menu

N, CodeValue1 = , CodeValue2 =
S, CodeValue1 = , CodeValue2 =
E, CodeValue1 = , CodeValue2 =
W, CodeValue1 = , CodeValue2 =
NE, CodeValue1 = , CodeValue2 =
SE, CodeValue1 = , CodeValue2 =
NW, CodeValue1 = , CodeValue2 =
SW, CodeValue1 = , CodeValue2 =

Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Corr Type - String, Length = 36

Rcvr Type - String, Length = 36

GPS Date - Date

GPS Time - Time

Update Status - String, Length = 36

GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000

Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

COMPRESSOR STATION - Point Feature

Compressor Station - String, Length = 35

Type - Menu

Existing, CodeValue1 = , CodeValue2 =

Proposed, CodeValue1 = , CodeValue2 =

Other, CodeValue1 = , CodeValue2 =

Boundary - Menu

Fence, CodeValue1 = , CodeValue2 =

Property Line, CodeValue1 = , CodeValue2 =

Survey Boundary, CodeValue1 = , CodeValue2 =

Other, CodeValue1 = , CodeValue2 =

Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Corr Type - String, Length = 36

Rcvr Type - String, Length = 36

GPS Date - Date

GPS Time - Time

Update Status - String, Length = 36

GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000

Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

PROJECT INFORMATION - Point Feature

PROJECT NAME - String, Length = 50

PROJECT NUMBER - String, Length = 25

STATE - String, Length = 30

COUNTY - String, Length = 30

Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0

Corr Type - String, Length = 36

Rcvr Type - String, Length = 36

GPS Date - Date

GPS Time - Time

Update Status - String, Length = 36

GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000

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Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Point_generic - Point Feature
  Comment - String, Length = 32
  Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Corr Type - String, Length = 36
  Rcvr Type - String, Length = 36
  GPS Date - Date
  GPS Time - Time
  Update Status - String, Length = 36
  GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
  Northing - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  Easting - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Line_generic - Line Feature
  Comment - String, Length = 32
  Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Corr Type - String, Length = 36
  Rcvr Type - String, Length = 36
  GPS Date - Date
  GPS Time - Time
  Update Status - String, Length = 36
  GPS Length - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  GPS 3DLength - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Line_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Area_generic - Area Feature
  Comment - String, Length = 32
  Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Corr Type - String, Length = 36
  Rcvr Type - String, Length = 36
  GPS Date - Date
  GPS Time - Time
  Update Status - String, Length = 36
  GPS Area - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  GPS Perimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  GPS 3DPerimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
  Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
  Area_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0

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Latitude	Longitude	Northing	Easting	ID	FeatureName	HAE	MSL	Comment	Max PDOP	Max HDOP
41 56 45.518924537 +	91 44 03.345496280 -	713892.331	2120771.4	16	Point_generic	686.383	793.465	Loc 008	2.4	1.9
41 56 47.548544473 +	91 44 02.051699221 -	714099.729	2120864.983	17	Point_generic	696.115	803.198	Loc 007	1.8	1.1
41 56 48.415743996 +	91 43 59.303678563 -	714191.713	2121070.829	18	Point_generic	707.202	814.287	Loc 006	2.4	1.8
41 56 47.168918476 +	91 43 56.046575680 -	714070.526	2121319.485	19	Point_generic	714.463	821.551	Well	2.6	1.5
41 56 47.133030150 +	91 43 57.239899090 -	714065.061	2121229.397	20	Point_generic	709.674	816.76	Loc 009	2.6	1.5
41 56 44.893033310 +	91 43 57.256365168 -	713838.332	2121232.76	21	Point_generic	695.218	802.304	Loc 010	2	1.1
41 56 45.090221621 +	91 43 53.267608853 -	713864.415	2121533.73	22	Point_generic	706.553	813.643	Loc 013	2	1.1
41 56 46.593529291 +	91 43 54.187501515 -	714015.148	2121461.133	23	Point_generic	714.519	821.607	Loc 012	2.2	1.3
41 56 45.706852333 +	91 43 55.152078222 -	713923.928	2121390.078	24	Point_generic	711.934	819.022	Loc 011	2	1.1
41 56 43.959040055 +	91 44 03.065818799 -	713734.888	2120795.737	25	Point_generic	677.751	784.832	Loc 005	5.9	1.6
				26	Point_generic			Loc 001	5.9	1.6

Corr Type	Rcvr Type	GPS Date	GPS Time	GPS Ht	Vert Prec	Horz Prec	Std Dev	Northing	Easting	GPSTime
Postprocessed	GeoXT 2005	4/4/2011	01:56:55pm	793.465	1.9	3.4	2.022222	713892.331	2120771.4	04/04/11 06:57:25pm
Uncorrected	GeoXT 2005	4/4/2011	02:00:20pm	803.198	25.3	18.7	0.290413	714099.729	2120864.983	04/04/11 07:00:37pm
Uncorrected	GeoXT 2005	4/4/2011	02:01:30pm	814.287	25.6	19.9	0.488308	714191.713	2121070.829	04/04/11 07:01:50pm
Postprocessed	GeoXT 2005	4/4/2011	02:10:55pm	821.551	2.2	1.7	0.657369	714070.526	2121319.485	04/04/11 07:11:15pm
Postprocessed	GeoXT 2005	4/4/2011	02:11:40pm	816.76	2.6	1.9		714065.061	2121229.397	04/04/11 07:11:55pm
Postprocessed	GeoXT 2005	4/4/2011	02:13:00pm	802.304	2	1.6	0.684371	713838.332	2121232.76	04/04/11 07:13:17pm
Postprocessed	GeoXT 2005	4/4/2011	02:15:30pm	813.643	2	1.5		713864.415	2121533.73	04/04/11 07:15:45pm
Postprocessed	GeoXT 2005	4/4/2011	02:16:20pm	821.607	2.2	1.7		714015.148	2121461.133	04/04/11 07:16:35pm
Postprocessed	GeoXT 2005	4/4/2011	02:18:20pm	819.022	1.9	1.5		713923.928	2121390.078	04/04/11 07:18:35pm
Postprocessed	GeoXT 2005	4/4/2011	05:19:20pm	784.832	5.4	1.6		713734.888	2120795.737	04/04/11 10:19:35pm
Unknown	GeoXT 2005	4/4/2011	05:27:20pm							

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APPENDIX E
FIELD DOCUMENTATION

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 1 QC Code: Matrix: Solid Tag ID: 5004-1-__

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #1, Out Footings 0-2 inches JED 11 Apr 2011

Storet ID: **External Sample Number:** CW-01-SD-001

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**
Latitude: **Sample Collection: Start:** 4/4/11 15:41
Longitude: **End:** 4/4/11 15:46

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 2 QC Code: ___ Matrix: Solid Tag ID: 5004-2-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #2, 0-1 foot by 0-2 inches, Top 11 Apr 2011
Storet ID: ___ External Sample Number: CW-01-SD-002

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: ___ Sample Collection: Start: 4/4/11 16:15
Longitude: ___ End: 4/4/11 16:18

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 3 QC Code: ___ Matrix: Solid Tag ID: 5004-3-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #3, 61 foot bags 0-2 inches Top 11 Apr 2011

Storet ID: _____

External Sample Number: CW-01-SD-003

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

15:35

Longitude: _____

End: 4/4/11

15:37

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 4 QC Code: Matrix: Solid Tag ID: 5004-4-

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, 0-1 foot bgs 0-2 inches ID 11 Apr 2011

Storet ID: External Sample Number: CW-01-SD-004

Expected Conc: Low (or Circle One: Low Medium High) Date 4/4/11 Time(24 hr)

Latitude:

Sample Collection: Start: 4/4/11 16:53

Longitude:

End: 4/4/11 16:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: ⁴5 QC Code: FD Matrix: Solid Tag ID: 5004-^{4FD}5

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, 1 foot bag, duplicate 0-2 inches 500 11 Apr 2011

Storet ID: _____ External Sample Number: CW-02-SD-004

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

16:53

Longitude: _____

End: 4/4/11

16:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 **Sample Number:** 6 **QC Code:** ____ **Matrix:** Solid **Tag ID:** 5004-6-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #5 5 ft foot bags 0-2 inches Tag 11 Apr 2011

Storet ID: _____ **External Sample Number:** CW-01-SD-005

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____ **Sample Collection: Start:** 4/4/11 15:59

Longitude: _____ **End:** 4/4/11 16:02

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total In Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 102 QC Code: ____ Matrix: Water Tag ID: 5004-102-__

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #2, surface water

Storet ID: _____ External Sample Number: CW-01-SW-002

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)
Latitude: _____ Sample Collection: Start: 4/4/11 16:11
Longitude: _____ End: 4/4/11 16:13

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH < 2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH > 12	14 Days	1 Cyanide, Total in Water

Sample Comments:

700 (N/A) Final Parameters

Temp (°F) 6.08°C
pH 8.30
D.O. (mg/L) 17.77
Turb (NTU) 0.0
Cond (µS/cm) 0.557
ORP 216

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 103 QC Code: ____ Matrix: Water Tag ID: 5004-103-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #3, Surface water

Storet ID: _____ **External Sample Number:** CW-01-SW-003

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____

Sample Collection: Start: 4/4/11

15:29

Longitude: _____

End: 4/4/11

15:32

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

wa(N/A) Final Parameters

Temp (°F) 59.8 °C
pH 7.51
D.O. (mg/L) 12.88
Turb (NTU) 20.7
Cond (µS/cm) 0.535
ORP 92

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 104 QC Code: ____ Matrix: Water Tag ID: 5004-104-__

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, surface water

Storet ID: _____

External Sample Number: CW-01-SW-004

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start:

4/4/11

16:40

Longitude: _____

End:

4/4/11

16:52

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

504 (N/A) Final Parameters

Temp (°F)

pH

D.O (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

too shallow to
measure parameters

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: ¹⁰⁴~~105~~ QC Code: ¹⁰⁴~~FD~~ Matrix: Water Tag ID: 5004-¹⁰⁴~~105~~-

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, surface water, duplicate

Storet ID: External Sample Number: CW-02-SW-004

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: Sample Collection: Start: 4/4/11 16:40
Longitude: End: 4/4/11 16:52

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~100 (N/A)~~

Final Parameters

Temp (°F)
pH
D.O. (mg/L)
Turb (NTU)
Cond (µS/cm)
ORP

Too shallow to
measure parameters

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 106 QC Code: ___ Matrix: Water Tag ID: 5004-106-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #5, surface water

Storet ID: _____ External Sample Number: CW-01-SW-005

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

15:54

Longitude: _____

End: 4/4/11

15:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~5004(N/A)~~ Final Parameters
Temp (°F) 6.29°C
pH 7.63
D.O. (mg/L) 13.83
Turb (NTU) 0.0
Cond (µS/cm) 0.552
ORP 202

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 111 QC Code: ____ Matrix: Water Tag ID: 5004-111-__

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: ~~Location #111~~, groundwater, onsite well

Storet ID: _____ **External Sample Number:** CW-01-GW-010

Expected Conc: ~~1000~~ (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____ **Sample Collection: Start:** 04/04/2011 10:24

Longitude: _____ **End:** 04/04/2011 10:36

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

309 (N/A) Final Parameters
Temp (⁵⁰⁰°C) : 4.64
pH 7.49
D.O. (mg/L) 8.22
Turb (NTU) 0.0
Cond (uS/cm) 0.929
ORP 357

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: ¹¹¹~~112~~₅₀ QC Code: FD Matrix: Water Tag ID: ^{111FD}~~5004-112~~

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #10, groundwater, duplicate Groundwater, onsite well, duplicate

Storet ID: _____

External Sample Number: CW-02-GW-010

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 04/04/2010 10:24

Longitude: _____

End: 04/04/2010 10:36

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

504 (N/A)

Final Parameters

Temp (^{mm}~~air~~) (°C): 4.64

pH: 7.49

D.O. (mg/l): 8.22

Turb (NTU): 0.0

Cond (µS/cm): 0.929

ORP: 357

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 113 QC Code: ___ Matrix: Water Tag ID: 5004-113-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #11, groundwater

Storet ID: _____

External Sample Number: CW-01-GW-011

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start:

4/4/11

14:02

Longitude: _____

End:

4/4/11

14:14

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~510 (N/A)~~ Final Parameters

Temp (°F) 8.47 °C

pH 7.08

D.O. (mg/L) 1.63

Turb (NTU) >800

Cond (µS/cm) 0.616

ORP 39

Sample Collected By: ~~JD/BAH~~ RA/Terranext

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 115 QC Code: Matrix: Water Tag ID: 5004-115-

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #13, groundwater

Storet ID: External Sample Number: CW-01-GW-013

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: Sample Collection: Start: 4/4/11 14:46
Longitude: End: 4/4/11 14:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

SDO (N/A)

Final Parameters

Temp (°F) 6.52°C
pH 7.58
D.O. (mg/L) 8.19
Turb (NTU) 112
Cond (µS/cm) 0.514
ORP 109

inadvertent
cross-cont.
sample was
collected.
SDO 4/6/11

Sample Collected By: JD/BAH RA/Ternext

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 116 QC Code: ___ Matrix: Water Tag ID: 5004-116-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Soil Equipment EB

Storet ID: _____

External Sample Number: CW-01-EB-001

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

17:05

Longitude: _____

End: 4/4/11

17:07

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 101 QC Code: _____ Matrix: Water Tag ID: 5004-101-_____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #1, surface water

Storet ID: _____ **External Sample Number:** CW-01-SW-001

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____ **Sample Collection: Start:** ____/____/____ ____:____

Longitude: _____ **End:** ____/____/____ ____:____

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total In Water

Sample Comments:

JDH (N/A) Final Parameters

Temp (°F)

pH

D.O (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

*Not Sampled
7/7/04
04/04/11*

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 107 QC Code: Matrix: Water Tag ID: 5004-107-__

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #6, GW

Storet ID: **External Sample Number:** CW-01-GW-006

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: **Sample Collection: Start:** **:** **:**

Longitude: **End:** **:** **:**

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

JDJ (N/A)

Final Parameters

Temp (°F)

pH

D.O. (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

Not Sampled
7/21/11
07/24/11

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 108 QC Code: ____ Matrix: Water Tag ID: 5004-108-__

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #7 groundwater

Storet ID: _____ External Sample Number: CW-01-GW-007

Expected Conc: Low (or Circle One: Low Medium High) Date _____ Time(24 hr) _____

Latitude: _____ Sample Collection: Start: ____/____/____ ____:____

Longitude: _____ End: ____/____/____ ____:____

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~SDS (N/A)~~

Final Parameters

*Temp (°F)
pH
D.O. (mg/L)
Turb (NTU)
Cond (µS/cm)
ORP*

*Not Sampled
until 04/04/11*

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 109 QC Code: ___ Matrix: Water Tag ID: 5004-109-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #8, groundwater

Storet ID: _____ External Sample Number: CW-01-GW-008

Expected Conc: Low (or Circle One: Low Medium High) Date _____ Time(24 hr) _____

Latitude: _____ Sample Collection: Start: ____/____/____ :____

Longitude: _____ End: ____/____/____ :____

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

not (N/A)

Final Parameters

Temp (°F)

pH

D.O. (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

Not Sampled
Mindy P. White
04/04/11

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 110 QC Code: ____ Matrix: Water Tag ID: 5004-110-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #9, groundwater

Storet ID: _____

External Sample Number: CW-91-GW-009

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start: ____/____/____ : ____

Longitude: _____

End: ____/____/____ : ____

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

304 (N/A)

Final Parameters

Temp (°F)

pH

D.O. (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

*Not Sampled
Munt P. Water
04/04/11*

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 114 QC Code: Matrix: Water Tag ID: 5004-114-

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #12, groundwater

Storet ID: **External Sample Number:** CW-01-GW-012

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: **Sample Collection: Start:** : :

Longitude: **End:** : :

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

100(N/A) Final Parameters

Temp (°F)

pH

D.O. (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

*Not Sampled
Mont P water
04/04/11*

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 117 QC Code: ___ Matrix: Water Tag ID: 5004-117-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: GW Equipment EB

Storet ID: _____

External Sample Number: CW-02-EB-001

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: ___/___/___

___:___

Longitude: _____

End: ___/___/___

___:___

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

(N/A)

*Not Sampled
P. W. H.
04/04/11*

Sample Collected By: JD/BAH

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

*U.S. GPO: 2002-756-917/40053

FedEx Package
Express **US Airbill** FedEx Tracking Number 8757 0149 7146

From Please print and press hard.

Date 04/05/2011

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Sender's Name John Dixon

Phone 703, 473-8717

Company Booz Allen Hamilton

Address 2300 Main St., Suite 900

City Kansas City State MO ZIP 64108

Your Internal Billing Reference 13-09075-0149-2731

To Recipient's Name Nicole Roblez Phone 913 551-5130

Company US EPA Region 7

Address 300 Minnesota Avenue

Dept./Floor/Suite/Room

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FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

Address Use this line for the HOLD location address or for continuation of your shipping address.

City Kansas City State KS ZIP 66101

This FedEx US Airbill has changed. See Section 4.
For shipments over 150 lbs., order the new FedEx Express Freight US Airbill.

Form 10 No. 0200 23 13 13 Sender's Copy

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully. Packages up to 150 lbs.
For packages over 150 lbs., use the new
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Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.

☒ FedEx Priority Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

☐ NEWFedEx 2Day A.M.
Second business morning.*
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon.* Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.

☐ FedEx Express Saver
Third business day.*
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☒ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.

☐ Indirect Signature
If one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

☒ No ☐ Yes
As per attached
Shipper's Declaration. ☐ Yes
Shipper's Declaration
not required. ☐ Dry Ice
Dry Ice, 9, UN 1845 x kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

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1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

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Credit Card No.

Total Packages Total Weight Total Declared Value*

2 lbs. \$.00

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REFERENCE

DATE

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



ALL-WEATHER FIELD BOOK

Name John Dixon - BAH

Address 2300 Main St., Suite 900
Kansas City, MO 64108

Phone 816-444-3253

Project 1731 RCRA Site Sampling

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
Left Page	Right Page	Polydata Cover	Fabricoid Cover
Columnar	1/4" Grid	Item No. 3501	Item No. 350F

25 Aug 2010 0730 - @ CW Process

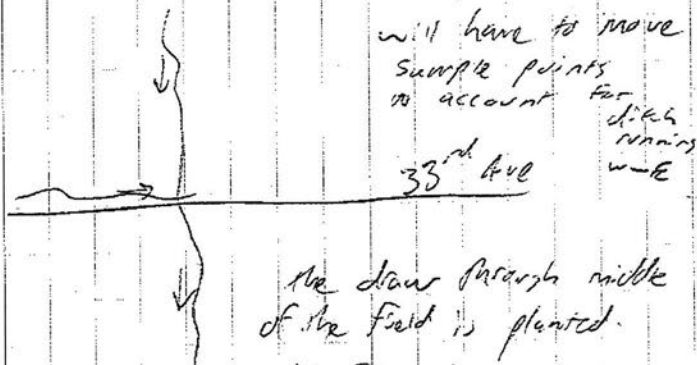
Site depleted & abandoned.

Fields to the East & Fields to the West
are in beans - ~ 1 month or so until
ready for harvest.

Knocked on house to East - 5001 Williams
nobody home. Looks like, maybe, nobody
lives there? It's mowed, but ~~there~~⁵⁰⁰
may be empty?

No house on ~~East~~⁵⁰⁰ West Side.

0859 - there is surface water to ~~East~~⁵⁰⁰
the West in draw



[Signature]
25 Aug 2010

Get Number

Joe Aussey

319-533-1399

@ Fri Et @ 10415

1100 - talked w/ Cynthia Hutchison -
discussed site & beans - Can't do our
sampling without damage to fields.
Don't know who farmers are.

Will probably check w/ FSA
& see if they can tell me who farms
the land. Talked w/ FSA - if I
had names of land owners - they
might be able to tie back to farmer.
Find info & call back
1526 - start putting together sample packs
for tomorrow & Friday.

Jan Diller
25 Aug 2010

9 Dec 2010

Ch Process.

0744 - arrive @ Site to stake out
Locations.

Photo. SW side of site, looking NW
@ Loc 006.

Photo - facing NE up the drainage way
toward CW, Locs 7+6

Photo - view of waterway on west
side. Mostly frozen, but there
is surface water to collect.

note: No surface water in drainage
swale

Photo - view up E side of W field
Locs 009 + 010

Photo - up W side of E field @ Loc 011

Photo - facing NW @ Locs 13+12

Am DDP 9 Dec 2010

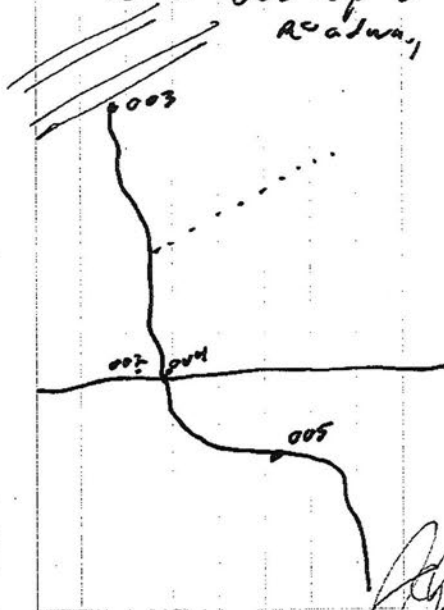
changes to SW points

- there's a 2nd source (trib) flows
into Loc 004 from the west.

move Loc 002 to just
west of Loc 004.

moved Locs 009 + ~~010~~⁰¹⁰ to the East just
a tad. Rest - OK

moved 005 up a bit towards
Roadway, - See map



Am DDP
9 Dec 2010

0906 - lid measurements. (all but SW points)

Ambient temp $\sim 17^{\circ}\text{F}$. Winds S ^{SE} ~~SW~~ ₂₀₀
 $\sim 10-15$ mph. Flow through cell won't
calibrate - freezing up. Probes on
w/ meter icing up also. Cannot do
w/ parameters. Will just pump \sim
1 gallon out of each hole & collect.

Also - gonna use PVC screens - decun
will be an issue & its only
metal/CN - PVC OK

0935 - starting @ Loc 010 - getting tight
clay/shale mix -ish @ $\sim 12'$.
hits 12-16' - almost refusal

1001 - Loc 010 - refusal @ 16' - hard
clay/shale -ish. Some moisture, but
Not wet. Left hole open & will
see if water comes.

1015 - Inserted w/ probe - Dry. Bentonite

1020 - Loc 009 - same thing. Sand lens
@ $\sim 8-10$ ft, but dry.

Jim D. Dwyer
9 Dec 2010

Photo - view of Loc 009 & old
well from prev. investigation. Facing NE.
Open 2" PVC.

Photo - old well, Facing E
open (no cap)

Inserted w/ probe in old well - $\sim 18'$ bgs
bottom silty & moist, but no measurable
water.

Put 5' of ⁵⁰⁰ PVC screen in hole #007
& 5' of PVC screen in Loc #006
0.010 screen Sched 40
 $\sim 3"$ cap.

1100 - gotten colder & flurries falling

1136 - Loc 008 - water @ 6.7' bgs.
- 12' well set 5' screen
⑩.

I put tubing to 9-10' bgs

1140 - Start purge, water clarity sediment - less
- Photo of water in bucket

Jim D. Dwyer
9 Dec 2010

1146 - dry after $\sim 1/2$ gallon. Pump off
for 2 min; back on @ 1148

1149 - got $\sim 1/4$ gallon before dry again

wait until 1154. Set line @ bottom of screen

1155 - got ~ 150 mL. Pump off -

wait until 1205.

1205 - got ~ 150 mL. Pump off

wait until 1220 + see

1220 - got ~ 150 mL.

Aaron Z - gone on Friday

829-3330 1127

Chris Boggs
713-829-3330

pulled it. for this 1 sample. need to
get 1 metals + 1 CN + 1 metals dup + 1 CN dup
4L would take $\frac{1}{2}$ hrs per cube or 10 hrs
est. 2 hrs per cube or 8 hrs per site.

enterite + pull screen.

1255 - left site for lunch. wait for
call from Cynthia RB: still do SW + SD?

John J. Dav 9 Dec 2014

As for waters + sediments -
waters frozen solid.

Photo - downstream @ area of 005
Facing SE

Photo - area of 004 facing N

Photo - area west of 004 NW

Photo - ~~shot~~ right as water is
coming on property (N side)
Facing W

Photo - culvert under road, coming onto
property, Facing NW

1453 - called it. Can't sample
water frozen, Sediment frozen

~~John J. Dav 9 Dec 2014~~

04/1/2011 - @ CW Process

0720 - onsite. Basting ice & marking
boreholes.

#8 - 136' N of 33rd Ave
45' E of creek.

#7 202' N of #8
108' East of #8

#6 77' N of #7
216' E of #7

#10 66' N of 33rd Ave
128' W of fence line (CW draw)

#9 227' N of #10

#11 142' N of 33rd Ave
28' E of fence line (CW draw)

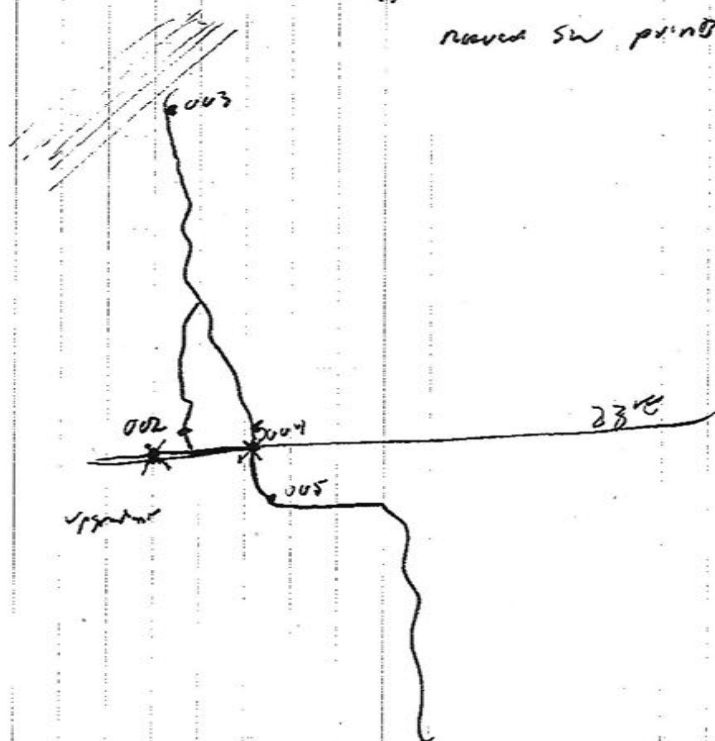
#12 89' N of #11
76' E of #11

#13 140' E of #11
78' N of 33rd Ave

John P. Diener 4 Apr 2011

0752 - SDS marked. Ice buster.

nearest SW point



0835 - Ruben w/ PSA onsite.
Diener

water in the unknown hole @
4.9' from top of casing;
casing is 2.5' high.

John P. Diener 4 Apr 11

will sample this unknown well also.

temp = ~42°F w/ 20 mph winds
from west.

started @ 10.

got down ~16' & into shale. Dry

After 40 min - still bone dry.

NO SAMPLE HERE

unknown well will be Loc 010

- changed field sheets

@ unknown: wL = 4.9' TOL (2.4' bgs)

TD: 19.8' TOL (17.3' bgs) - bottom

very silty & not sure if c-ppd.

no idea where screen is (if there is one)

going to set tubing to 10' bgs

Turned pump on @ 0956.

Flow ~ 200 ml/min

Time	Temp °C	pH	Cond	DU	Turb	URP
1000	5.29	7.36	1.01	9.01	10.7	335
1005	5.08	7.44	0.980	6.99	7.9	343
1010	4.95	7.45	0.970	6.97	1.0	342
1015	4.85	7.46	0.966	6.91	0.0	345
1020	4.68	7.44	0.937	8.21	0.0	356
1024	4.64	7.44	0.929	8.22	0.0	357

sample @ 1024

water has a slight greenish color

Photos - @ 1059

- 1 unknown well, looking E
- 3 from unknown, looking toward CW, N
- 2 from unknown, looking ✓ @ 009 + 008
- 4 CW site, from 009, looking NE

1102 - well Locs 10 + 009 are dry

#006 - has water.

1121 - Bill Barker called. He's coming out to meet w me.

008 - TD: 13.4 TUC (11.7 bgs)
WL: 8.05 TUC (6.35 bgs)

1.7

quit the cyanide - 92-93

should trace w/ ferr sulfate
+ store in pit.

CR

Ferric
sulfate
treatment

Cyanide pit -
- 170/180 drums of 5% when they cleaned in
- mid 80's

Pump on: 12:02

ms/cm (m/s)

(m/s)

Time	Temp	pH	Cond	D.O	Turb	ORP
------	------	----	------	-----	------	-----

1202 - on. water chocolate-like & very
silty.

1203 - dry. let charge to 1209. 1210 - dry.

1217 - pump on. 1217 (18 sec - Dry)

1225 - pump on. 5 seconds later - dry.

1235 - pump on. less than 2 seconds of water.

1250 - pump on - 2 seconds only

Abandoned this.

total purged (including flow)

= ~ 100 - 150 mL + 15

heavy sediment-laden

1316 - onsite.

Jim D. [Signature]

11 Apr 11

met w/ Bill Barker onsite. he showed
me where car pit was

process tanks

P.1

Sump

containing water (sampled)

Note on #008 - borehole is deeper
than the creek/trip.

#007 TD 13.1 TUC (11.7 bgs)
WL 6.7 (5.1 bgs)
rising 1.6

1302 - pump on 1303 - dry (@ ~100 mL/min)

1310 - pump on. 15 sec of water, then dry.

1320 - pump on - 15 sec of water, then dry

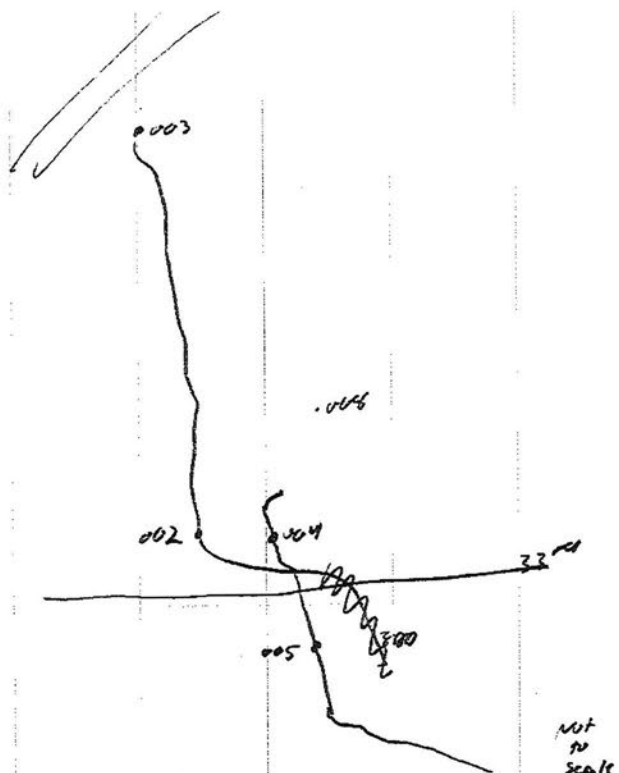
Abandon effort

would take 1 hr for 100 mL; 10 hrs for cubic,

1330 - pump on - 15 sec of water, then dry

total purged
~ 200 mL

Jim D. [Signature] 11 Apr 11



001 - sediment from ditch; 28.7' w-sw of 006

002 - 40' N of 33rd on west branch

003 - 25' from roadway

004 - 31' N of roadway

005 - 12' South of 33rd

John D. [Signature] 4/1/11

003 ✓

001 - scraped up 1/4 inch from
washout area

photo @ 1548 - view of CW
Eucis N.E., sed location below

photo @ 1549 - Sediment loc 001

005 from 33rd Ave.

002 - photo up 002 & down
to jet

004 - photos up 004 & down
up 00

No GPS on # 2, 4, 3, & 1

in low areas, and/or in trees, etc

Too much interference

Left site @ 1738

[Signature] 4/1/11

CONTENTS

REFERENCE

DATE

PAGE

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



ALL-WEATHER FIELD BOOK

Name Meredith Watson
Terranext, LLC
Address 11904 Grandview Rd
Grandview, MO 64030
Phone 913-894-4000
Project #1731 RCRA Site Sampling

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

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Columnar	1/4" Grid	Item No. 350	Item No. 350F

Fmr C.W. Processing 8/25/10

MPW

0645 Meet in hotel lobby. Discuss SOW.
Load truck. Pack ice in coolers.
Mob to site.

0742 Arrive onsite (John Dixon/BAH and
Meredith Watson & Roy Ashlock/
Terranext. Walk site. Discuss
sampling locations in new bean
field adjacent to property.

0750 Utility locator onsite. Utilities
cleared for sampling locations.

0810 Attempt to contact adjacent
property owner/occupant to
the east at 5001

No answer

0845 M. Watson offsite. John and Roy
continue site visit.

0905 MPW onsite. PSA onsite already.
Waiting on EPA to return call.
BAH recommends postponing
soil sampling until after crop
is harvested.

1030 No word from EPA. BAH calls
off sampling event (postpones)
M. Watson and PSA offsite.

MPW
08/25/10

12/9/10

C.W. Process

MPW

0735 Loaded vehicles. Mob to CW
 0750 BAH (John Dixon) and Terranext (Meredith Watson and Roy Ashlock) onsite. Begin marking sampling locations. John taking photos. Roy calibrating water quality meters after allowing them to 190°F ambient temperatures. Snow and ice on ground. Surface water present in adjacent creek.

0900 PSA (Kenny Doane) onsite. Warming up rig. Unable to calibrate water quality meter due to below freezing temps combined with windy conditions. Do not want to risk freeze damage to sensors so will not be collecting parameters today.

0925 Set up at Location #10 for groundwater sample.

Location #10 (grass surface)

0-2 CH: brown CLAY, damp, plastic, medium stiff

2-4 ML: orange, sandy SILT, damp, non-plastic, soft

MPW

MPW

C.W. Process

12/9/10

Location #10 continued

4-10.5 CH: orange, silty CLAY, damp, plastic, stiff with sand layers

10.5-¹⁶₁₂ CL: grey CLAY, damp, non-plastic, stiff (very)

0940 Sampler refusal at ¹⁶₁₂ ft below ground surface. Will set bottom ~~at screen~~ ^{now} leave borehole open to see if any groundwater comes in. Encountered grey-green shale.

1000 Begin borehole #9

Location #9 (grass surface)

0-1.5 CH: brown CLAY, damp, plastic, medium stiff

1.5-2.5 CH: orange, silty CLAY, damp, plastic, medium

2.5-5 ML: orange SILT, damp, non-plastic, soft

5-8 CH: orange, silty CLAY, moist, plastic, stiff

8-10 ML: orange, sandy SILT, moist, non-plastic, soft

10-12 CH: gy CLAY, damp, non-plastic, stiff

12-~~15~~¹³ ML: ~~gy and orange~~ SILT, damp, non-plastic, stiff
 13-15 CH: dark gy, silty CLAY, damp, non-plastic, very stiff (MPW)

12/9/10

C.W. Process

MPW

1015

Refusal at 15 ft for Location #9.

1020

Set up at ~~A~~ Location #6. Plugged #9 and #10 with bentonite after waiting to see that borehole is not going to produce water.

Location #6 (grass surface)

0-3 CH: brown CLAY, damp, plastic, medium stiff

3-4.5 CH: ac, wet

4.5-7 CH: orange CLAY, damp, plastic, stiff

7-8 CL: grey CLAY, damp, non-plastic, very stiff

Refusal at 8 ft bgs. Will set PVC screen due to presence of saturated soil.

1030

Location #7 (grass surface)

0-2 CH: brn CLAY, damp, plastic, medium

2-3 CH: ac, moist

3-5 CL: brn and orange, silty CLAY, damp, trace plastic, stiff

5-7 CH: orange, silty CLAY, moist, plastic, medium stiff

MPW

MPW

C.W. Process

12/9/10

#7 continued

7-8.5 ML: orange, sandy SILT, wet, non-plastic, soft

8.5-12 CL: grey CLAY, damp, trace plastic, stiff

Refusal at 12 ft bgs. Set PVC screen.

1100 Location #8 (grass surface)

0-3 CH: brown CLAY, damp, plastic, medium stiff

3-6.5 CH: ac, moist

MPW
12/9/10

6.5-10 CH: grey to dark grey, silty CLAY, moist, plastic, stiff

10-12 ML: orange, sandy SILT, non-plastic, soft

moist
foam
MPW
12/9/10

1120 Set PVC screen to collect ground water. Water present in borehole.

John Dixon gauging boreholes. Locations #6 and #7 have not produced any groundwater.

MPW

12/9/10

C.W. Process

MPW

1125 Location #12 (grass surface)

0-1.5 CL: brown CLAY, damp, trace,
plastic, medium stiff1.5-2 ML: orange, sandy SILT, damp,
non-plastic, soft2-5 CL: orange, silty CLAY, damp,
trace plastic, stiff5-7 ML: orange, sandy SILT, wet,
non-plastic, soft7-8 SM: drab and orange, silty SAND,
moist, fine grained, sub-
round to angular, quartz8-8.5 ML: orange, sandy SILT, moist,
non-plastic, soft8.5-9 SM: dr and orange, silty SAND,
moist, fine, sub-round to ang,
quartz9-11 CL: orange and grey, silty CLAY,
damp, non-plastic, stiff

Refusal at 11 ft bgs. Set PVC screen.

MPW

MPW

C.W. Process

12/9/10

1140

Location #11 (grass surface)

0-2 CL: brn CLAY, damp, non-plastic,
stiff2-6 ML: orange SILT, damp, non-
plastic, stiff6-8 ML: orange, sandy SILT, damp
to moist, soft with inter-
mittent sands up to 3 inch
in thickness8-11 ML: orange SILT, damp, soft,
non-plastic11-12 CL: grey CLAY, damp, non-
plastic, very stiffRefusal at 12 ft bgs. Borehole
plugged with bentonite because
saturated soils were not seen.

MPW

12/5/10

CW Process

MPW

1200

Location #13 (grass surface)

0-3.5 CL: brn CLAY, damp, non-plastic, stiff

3.5-4 ML: orange, sandy SILT, damp, non-plastic, soft

4-6 SM: dr and orange, silty SAND, moist, fine, arg to sub-rnd, quartz

6-9 ML: orange, sandy SILT, wet, non-plastic, soft

9-11 ML: orange SILT, damp, non-plastic, medium stiff

11-12 CL: grey CLAY, damp, non-plastic, stiff

Set PVC screen.

1300 Borehole locations #6 and #7 never made water. Plugged holes after removing temporary screen. Location #8 pumps dry after very little volume. Unable to collect enough groundwater samples. Pull screen and plug borehole. Gauge #12 and #13. Boreholes dry. Remove screen and plug. Offsite for lunch.

MPW

MPW

1330

1430

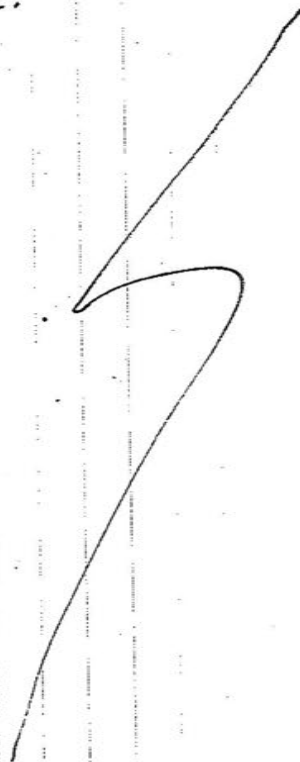
1510

CW Process

12/5/10

John has a call into project manager. Will wait at hotel to hear back.

Mob to site to access possibility of sampling surface water through ice. Decide to call off event. Offsite.



MPW

4/4/11

C.W. Process

MPW

0715 BAH (John Dixon) and Terranext (Roy Ashlock and Meredith Watson) on-site. Mark off locations for ground water sampling. Approximately same locations as last event on 12/09/10. Roy bagging ice for sample cooler. Temp ^{at 100 ft} ~~at 300 ft~~ with gusty winds. Photos taken of current site conditions.

0825 John offsite for coffee.

0815 John on-site.

0835 PSA (Robert Pieman) on-site. Warming up rig. Will inspect soils at first location (#10) for ground water saturation then proceed to set screens for others.

0855 Set up at Location #10 at SE corner of western bean field. John gauged onsite well which has ~2.5 ft of water (dry last event).

0910 Refusal at 16 ft bgs in shale. Soil description same as last event. Will set screen to prevent hole collapse and wait to see if it waters in. Waste soils thin-spread onsite.

MPW

MPW

C.W. Process

4/4/11

Set up at #9 location N of #10.
0935 Refusal at 12 ft (shale). Will use 10 ft of screen in case the swelling clay is blocking in flow of groundwater. Roy has calibrated water quality meters and John is sampling well.

0950 Encountered shale at 12 ft. (#6) Will set screen and continue on to next borehole.

1010 Location #7 refusal at 12 ft. Soils saturated at 8-8.5 ft interval. Will set #7 with 5 ft of screen and move to #8 near adjacent creek.

1025 Total depth at #8 is 12 ft. Stopped drilling to set screen and sample (saturated soils were encountered at ~~8~~ feet).
~6 feet MPW 4/4/11

1035 Terranext offsite.

1050 Terranext on-site. Proceed to orange walls already set up.

MPW

4/4/11

C.W. Process

MPW

- 1057 #10 is dry.
 1059 #9 is dry.
 1104 #6 is dry.
 1113 #7 has 1.24 ft of groundwater in temporary casing.
 1120 John preparing to sample ground water at #7 and #8.
 PSA and Terranext setting up to install temporary casings at #11, 12, and 13 in eastern bean field.
 1140 Encountered shale at ~9 ft refusal at 12 ft. Screen set. (#12)
 1205 #11 total depth 12 ft bgs. Soils saturated below 8 ft. Set screen.
 1215 TD #13 at 12 ft bgs. Soils are saturated below 6 ft. Set screen.
 1230 Terranext off site to pick up lunch
 1250 Terranext on site. John set up to collect groundwater sample at #7.
 Location #8 pumped dry before a sufficient volume was purged to sample.
 1300 PSA off site.
 1304 Location #12 has ~3.5 ft of water. Set up pump + tubing for sampling. (TD=9.6)
 MPW

MPW

C.W. Process

4/4/11

- 1340 Not enough volume pumping out of #7 or #12 for sampling. #12 pumps dry in ~40 sec after a 5 minute recharge.
 1343 Water level @ 2.4 ft in #11. Bottom of screen @ 11.2 ft. ∴ 8.8 ft of water in borehole. Set up pump + tubing.
 1425 Sampled #11. Setting up pump and tubing at #13. Water at 3.3 ft bgs. TD = 9.4 ft bgs. ~6 ft of water in hole.
 1515 Sampled #13. PSA pulled all temporary PVC casing. PSA off site. Holes plugged with bentonite. Set up for sediment/surface water samples.
 1730 Sample containers on ice. John collecting GPS data from sampling locations. Equipment loaded.
 1740 BAH and Terranext off site.

MPW

CONTENTS

PAGE REFERENCE DATE

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



ALL-WEATHER FIELD BOOK

Name Roy Lee Ashlock Jr / Terramex

4050 E cotton center Blvd Suite 73

Address PHX, AZ 85040

Phone 480-496-4100

Project #1731

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

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Columnar	1/4" Grid	Item No. J53	Item No. J50F

ew process company

8/25/10

Ala

Begin loading for JOC site
0630, get ice for samples

0740 Arrive on site at ew processing
Scout Area

0750 Utility workers onsite
for utility mark out
city

West side property surface
water flowing

Western Field is Bean
Field

Eastern Field is Bean
Field

Bean Field probably won't be
picked until October/November

Talked with individual
onsite @ 1049

Get property owner's current
phone number JOC 319-533-1394
Depart site @ 1052 and got
to FedEx to ship samples
Finish @ 1200

by Lushla)

①

by Lushla?

Key Ashland

12-9-10 CW Process Company Telford

Depart Hotel 0730

Onsite 0745

Mark out Borehole sites

Attempt to calibrate Horiba

V-50 / problem with calibration

Due to Freezing weather

0925 Load truck with

Equipment & pull up to

hole # 10

Assist with Field Activities

1300 offsite for lunch

1330 ~~Call~~ Into ^{new} John

has call into project manager

1430 Back onsite to wait

on return call

Scout possible surface sample

Areas that are not frozen

John took pictures to document

frozen surface water & tested

frozen Areas for thickness

Key Lumber

12-9-10 CW process company
Determine vnable to get Surface
samples
Load & Defalt site 1500

12-9-10 CW process complete
Determine viable to get surface
samples

Load & Depart Site 1500

Way & Ashla?

Roy & Ashlock

Roy Ashlock TerraNext
4-4-11 C.W. Process Company

Let BH 12 Recover

Begin pumping 1327 / Pumped

dry again @ 1328 / Let Recover

Begin pumping 1335 / Pumped dry
1336

Begin pumping BH 11 @ 1348

& Take Field Readings

Finish pumping @ 1403

& collect samples

set up on BH 13

& Begin pumping 1429

Finishing pumping 1447

Collect water samples 1447

Fill Boreholes with Bentonite

Finish 1515

collect surface water

& sediment samples 1515

Finish collecting surface

& sediment samples and
loading coolers & Equipment

1730

Finish up & Depart 1740

①



A Woman Owned
Business Enterprise

SHEET ____ OF ____ JOB NO. ____

PROJECT ____

BY ____ DATE ____ / ____ / ____

CHECKED BY ____ DATE ____ / ____ / ____

Roy Ashlock

Roy Ashlock

BH 12

Begin pumping 1317 500ML in 3 min

pumped dry @ 1320 / Let Recover

Begin pumping 1327 - pumped dry again 125 mL @ min

@ 1328 / Let Recover / Begin pumping 1335

100 mL 30 sec / pumped dry / 1336

BH 11

Begin pumping 1348 175 mL @ min

1353 Take Field Reading

9.46 °C

7.27 pH

Flow 150 mL @ min

-15 ORP mV

0.601 mS/cm

0.0 NTU

0.55 mg/L DO

1358

8.72 °C

7.11 pH

-13 ORP mV

0.607 mS/cm

0.0 NTU

0.65 mg/L DO

1403

8.47 °C

7.08 pH

39 ORP mV

0.616 mS/cm

>800 NTU

1.63 mg/L DO

pumped approx 1 gallon of water

BH 13

Begin pumping 1429

200 mL @ min 1432

Begin Field Readings

1437

6.87 °C

7.59 pH

98 ORP mV

0.518 mS/cm

0.0 NTU

8.17 mg/L DO

1442

6.81 °C

7.71 pH

107 ORP mV

0.511 mS/cm

7800 NTU

7.78 mg/L DO

1447

6.52 °C

7.58 pH

109 ORP mV

0.514 mS/cm

112 NTU

8.19 mg/L DO

pumped approx 1 gallon
of water

APPENDIX F
PHOTOGRAPHIC LOG

Appendix F – Photographic Log



Photo 1; August 25, 2010, 0945; Photographer: Meredith Watson; Facing S.
View of the former facility from the front entrance drive.



Photo 2; August 25, 2010, 0946; Photographer: Meredith Watson; Facing S.
View of the former facility property, from the entrance drive.

Appendix F – Photographic Log



Photo 3; August 25, 2010, 0945; Photographer: Meredith Watson; Facing SE. View of the soybean field east of the former facility property from the front entrance drive.



Photo 4; August 25, 2010, 0944; Photographer: Meredith Watson; Facing SE. View of the soybean field east of the former facility property.

Appendix F – Photographic Log



Photo 5; August 25, 2010, 0749; Photographer: Meredith Watson; Facing NW. View, from the former facility property, of the soybean field to the west. Creek present in treeline to the far west.



Photo 6; August 25, 2010, 0756; Photographer: Meredith Watson; Facing S. View, from the same position as Photo 1, of the soybean field to the west of the property and the residential properties to the south.

Appendix F – Photographic Log



Photo 7; December 9, 2010, 0818; Photographer: John Dixon; Facing NW.
View of the southwest corner of the west field. Location 008 is flagged.



Photo 8; December 9, 2010, 0820; Photographer: John Dixon; Facing NE.
View up the drainageway bisecting the west field, looking towards the former
CW Process site. Locations 007 (near) and 006 (far) flagged.

Appendix F – Photographic Log



Photo 9; December 9, 2010, 0827; Photographer: John Dixon; Facing NNE.
View of the east side of the west field, looking toward the former CW Process site. Location 010 is flagged.



Photo 10; December 9, 2010, 0831; Photographer: John Dixon; Facing N.
View up west side of the east field, from the 33rd Avenue right-of-way (former CW Process site is to the left). Location 011 is flagged.

Appendix F – Photographic Log



Photo 11; December 9, 2010, 0832; Photographer: John Dixon; Facing N.
View of east field (former CW Process site to the left). Location 013 is flagged.



Photo 12; December 9, 2010, 1026; Photographer: John Dixon; Facing NE.
View of Location 009 (flagged), facing the former CW Process site. An apparent, former groundwater monitoring well is visible in the treeline.

Appendix F – Photographic Log



Photo 13; December 9, 2010, 1027; Photographer: John Dixon; Facing down. View of the apparent, former groundwater well shown in Photo 12. Two-inch, open-topped PVC pipe. The well was gauged and was dry.



Photo 14; December 9, 2010, 1147; Photographer: John Dixon; Facing down. View of the groundwater purged from Location 008. Minimal water and heavily sediment-laden.

Appendix F – Photographic Log



Photo 15; December 9, 2010, 0821; Photographer: John Dixon; Facing N.
View of the surface water near Location 004 (southwest corner of the west field).
Water is frozen.

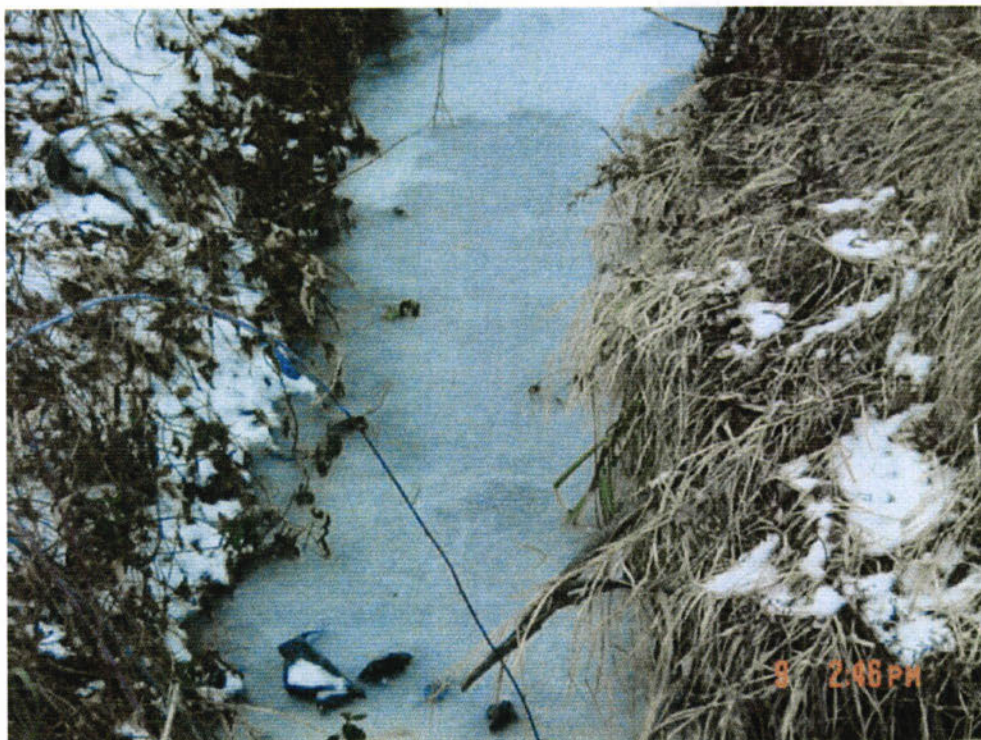


Photo 16; December 9, 2010, 1446; Photographer: John Dixon; Facing N.
View of the surface water near Location 004. Water is frozen.

Appendix F – Photographic Log



Photo 17; December 9, 2010, 1445; Photographer: John Dixon; Facing SW.
View of the surface water leaving the site (downstream) from culvert under 33rd Avenue. Water is frozen.



Photo 18; December 9, 2010, 1451; Photographer: John Dixon; Facing W.
View up surface water near Location 003 (upstream, coming onto the property).
Water is frozen.

Appendix F – Photographic Log



Photo 19; December 9, 2010, 1451; Photographer: John Dixon; Facing NW.
View of the surface water coming onto the property west of the west field (from under Williams Boulevard). Water is frozen.



Photo 20; April 4, 2011, 1058; Photographer: John Dixon; Facing E.
View of the existing well south of the former CW site (TMW1).

Appendix F – Photographic Log



Photo 21; April 4, 2011, 1058; Photographer: John Dixon; Facing W.
View of Location 009 (PVC riser) from the existing well TMW1.



Photo 22; April 4, 2011, 1058; Photographer: John Dixon; Facing N.
View of the former CW Process site from existing well TMW1 (manufacturing site is north (behind) the barn shown in this view).

Appendix F – Photographic Log



Photo 23; April 4, 2011, 1059; Photographer: John Dixon; Facing NE.
View of the former CW Process site from Location 009.

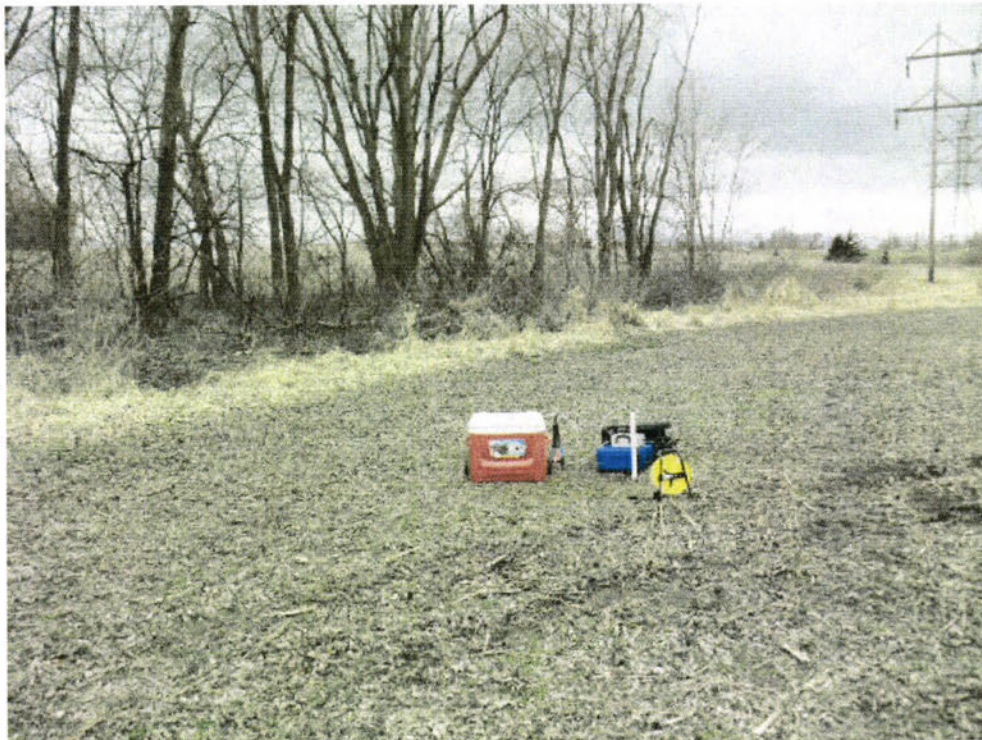


Photo 24; April 4, 2011, 1233; Photographer: John Dixon; Facing NW.
View of groundwater purging at Location 008. Unnamed tributary west of the former CW Process site is beyond the trees on the left of the photograph.

Appendix F – Photographic Log



Photo 25; April 4, 2011, 1234; Photographer: John Dixon.
View of the groundwater purged from Location 008. Heavy silt content and slow production rate (less than 100 mL per hour).



Photo 26; April 4, 2011, 1234; Photographer: John Dixon; Facing NE.
View of Location 008 (near), looking towards the former CW Process site.

Appendix F – Photographic Log



Photo 27; April 4, 2011, 1538; Photographer: John Dixon; Facing NW.
View of the surface water coming onto the property west of the west field (from under Williams Boulevard). Sampling Location 003 below culvert.



Photo 28; April 4, 2011, 1526; Photographer: John Dixon;
Close-up view of Sampling Location 003.

Appendix F – Photographic Log



Photo 29; April 4, 2011, 1547; Photographer: John Dixon; Facing ENE.
View of sediment Sampling Location 001 (near yellow logbook and adjacent rock) within the drainageway running SW from the former CW Process site.



Photo 30; April 4, 2011, 1547; Photographer: John Dixon; Facing ENE.
Close-up view of sediment Sampling Location 001.

Appendix F – Photographic Log



Photo 31; April 4, 2011, 1550; Photographer: John Dixon; Facing SSW.
View of Sampling Location 005 from 33rd Avenue.



Photo 32; April 4, 2011, 1607; Photographer: John Dixon; Facing N.
View of the western fork of the unnamed tributary west of the former CW Process site (view from 33rd Avenue). Sampling Location 002.

Appendix F – Photographic Log



Photo 33; April 4, 2011, 1607; Photographer: John Dixon; Facing E.
View of the junction of western fork and eastern fork of the unnamed tributary west of the former CW Process site. Forks join together at the bend prior to crossing 33rd Avenue and flowing offsite to the right.



Photo 34; April 4, 2011, 1622; Photographer: John Dixon; Facing N.
View of the eastern fork of the unnamed tributary west of the former CW Process site. Sampling Location 004 near the northern section of this fork.

Appendix F – Photographic Log



Photo 35; April 4, 2011, 1623; Photographer: John Dixon; Facing N.
View of the “spring-like” emergence of the eastern fork of the unnamed tributary west of the former CW Process site. Sampling Location 004 is immediately downstream of the fork’s emergence.

END OF PHOTOGRAPHIC DOCUMENTATION

APPENDIX G
ANALYTICAL SERVICE REQUEST FORMS

US EPA Region 7 Analytical Services Request (ASR)

11/17/2010 12:37

Project ID: CHCWPCRCRA

ASR Number: 5004

Projected Delivery Date: 12/10/2010

Project Desc: C.W. Process Company - RCRA site sampling

City: Cedar Rapids

State: Iowa

Program: RCRA Corrective
Action

GPRA PRC: 302D99C

Project Manager: Cynthia Hutchison

Organization: AWMD/RCAP

Phone Number: 913-551-7478

Contact: John Dixon

Organization: Booz-Allen and Hamilton,
Inc.

Contact Phone: 816-448-3253

ASR Purpose:

Comments: Site Characterization
RCRA Site ID: IAD005277256.

Is this activity currently or potentially a criminal investigation? No

Has a QAPP for the requested services been approved? Yes

QAPP Log Number and/or QA Document Number:

For health, safety and environmental compliance are any samples expected to contain:

Dioxin > 1ppb: Unlikely

RCRA Listed Wastes: Unlikely

Toxic/Hazardous Chemicals >1000ppm: Unlikely

No. of Samples	Req No	Analysis Name	CNS List	Conc of Interest	Expected Conc	Lab
6	1	Cyanide, Total in Soil		3135.2J	Low	ESAT
6	1	Percent Solid			Low	EPA
6	1	Total Metals Analysis of TCLP Metals in Soil by ICP-AES		3122.3C	Low	ESAT
17	1	Cyanide, Total in Water		3135.2J*	Low	ESAT
17	1	Metals in Water by ICP/MS		3123.1C	Low	ESAT

Special Analytical Requirements or Comments:

60-Day TAT from the receipt of the last sample (per MSG/CARB). All samples delivered in 1 batch on Friday (12/10) by noon via overnight priority delivery. No weekend deliveries. Field sampler must ensure that samples arrive on or before the 3rd day of sample collection. No extra volume for QC (MS/MSD) is needed/required if remaining containers are completely full and must be shipped/delivered properly to avoid any and/or all breakage. Container combinations will be coordinated with the sampler when the fieldsheets and tags are retrieved from the STC. Sampler has noted that Hg is not requested on this ASR, and that *CN results were up to 380 mg/L at previous sampling.

Date Submitted: 07/22/2010

By: Nicole Roblez

ASR Status: Accepted

Date Accepted: 08/03/2010

By: Nicole Roblez

RLAB Turn Around Time: 60 Days

Date Transmitted:

By:

ANOP Turn Around Time: 46 Days

Sampling Supplies and QC/PE Samples

11/17/2010 12:53

ASR Number: 5004

Project ID: CHCWPCRCRA

Project Desc: C.W. Process Company - RCRA site sampling

Project Manager: Cynthia Hutchison

Organization: AWMD/RCAP

Phone Number: 913-551-7478

Contact: John Dixon

Organization: Booz-Allen and Hamilton, Inc.

Contact Phone: 816-448-3253

Supply Pickup Date: 12/02/2010 RLAB Will supply Field sheets and Tags

Supply Comments:

Fieldsheets, tags, acids and DI water will be ready in the back dock refig. at the STC for a pickup on or before Thursday (12/2)am. Field sampler will need to contact Joe Ricard (3-Days prior to gear pickup date) at Cell #913-339-8104 or 816-268-0225 to coordinate the remaining sampling supplies pickup at 8600 NE Underground Dr., Pillar 253, K.C., MO. 64161.

Qty	Sample Containers	Qty	Equipment
36	1-Liter Cubitainer w/lid	1	Ice Chest (w/ plastic bag)
8	8-oz. Wide Mouth Glass Jar (250 mL)		
Qty	Preservatives	Qty	Misc. Supplies
1	HNO3 (1:1) 5mL Squeeze Bottle	2	Chain-of-Custody Forms (each)
1	NaOH (Pellets)	1	Custody-Seal Tape (by piece)
		1	Fiber Tape (by roll)
		1	Clear Wide Tape (by roll)
Qty	QC Samples		
1	DI Water, 1-Gallon Cubi		

Performance Evaluation Samples

Qty	Matrix	Analytes	Concentration Range
(None)			

**United States Environmental Protection Agency
Region 7
901 N. 5th Street
Kansas City, KS 66101**

Date: 05/06/2011

Subject: Transmittal of Sample Analysis Results for ASR #: 5004

Project ID: CHCWPCRCRA

Project Description: C.W. Process Company - RCRA site sampling

From: Michael F. Davis, Chief
Chemical Analysis and Response Branch, Environmental Services Division

To: Cynthia Hutchison
AWMD/RCAP

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Cynthia Hutchison**Org:** AWMD/RCAP**Phone:** 913-551-7478**Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling**Location:** Cedar Rapids**State:** Iowa**Program:** RCRA Corrective
Action**Purpose:** Site Characterization**GPRA PRC:** 302D99C

RCRA Site ID: IAD005277256.

Explanation of Codes, Units and Qualifiers used on this report**Sample QC Codes:** QC Codes identify the type of sample for quality control purpose.**Units:** Specific units in which results are reported.___ = Field Sample
FD = Field Duplicate% = Percent
Deg C = Degrees Celsius
NTU = Nephelometric Turbidity Units
SU = Standard Units (pH)
mg/L = Milligrams per Liter
mg/kg = Milligrams per Kilogram
ug/L = Micrograms per Liter
umhos/cm = Micromhos per Centimeter**Data Qualifiers:** Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.

U = The analyte was not detected at or above the reporting limit.

ASR Number: 5004

Sample Information Summary

05/06/2011

Project ID: CHCWPCRCRA Project Desc: C.W. Process Company - RCRA site sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - ___		Solid	Location #1 (0-1' bgs)	CW-01-SD-001	04/04/2011	15:44	04/04/2011	15:46	04/06/2011
2 - ___		Solid	Location #2 (0-1' bgs)	CW-01-SD-002	04/04/2011	16:15	04/04/2011	16:18	04/06/2011
3 - ___		Solid	Location #3 (0-1' bgs)	CW-01-SD-003	04/04/2011	15:35	04/04/2011	15:37	04/06/2011
4 - ___		Solid	Location #4 (0-1' bgs)	CW-01-SD-004	04/04/2011	16:53	04/04/2011	16:57	04/06/2011
4 - FD		Solid	Location #4 (0-1' bgs)/Field Duplicate of sample 4	CW-02-SD-004	04/04/2011	16:53	04/04/2011	16:57	04/06/2011
6 - ___		Solid	Location #5 (0-1' bgs)	CW-01-SD-005	04/04/2011	15:59	04/04/2011	16:02	04/06/2011
102 - ___		Water	Location #2 - Surface water	CW-01-SW-002	04/04/2011	16:11	04/04/2011	16:13	04/06/2011
103 - ___		Water	Location #3 - Surface water	CW-01-SW-003	04/04/2011	15:27	04/04/2011	15:32	04/06/2011
104 - ___		Water	Location #4 - Surface water	CW-01-SW-004	04/04/2011	16:40	04/04/2011	16:52	04/06/2011
104 - FD		Water	Location #4 - Surface water/Field Duplicate of sample 104	CW-02-SW-004	04/04/2011	16:40	04/04/2011	16:52	04/06/2011
106 - ___		Water	Location #5 - Surface water	CW-01-SW-005	04/04/2011	15:54	04/04/2011	15:57	04/06/2011
111 - ___		Water	Groundwater - On-site well	CW-01-GW-010	04/04/2011	10:24	04/04/2011	10:36	04/06/2011
111 - FD		Water	Groundwater - On-site well/Field Duplicate of sample 111	CW-02-GW-010	04/04/2011	10:24	04/04/2011	10:36	04/06/2011
113 - ___		Water	Location #11 - Groundwater	CW-01-GW-011	04/04/2011	14:02	04/04/2011	14:14	04/06/2011
115 - ___		Water	Location #13 - Groundwater	CW-01-GW-013	04/04/2011	14:46	04/04/2011	14:57	04/06/2011
116 - ___		Water	Soil Equipment Blank sample	CW-01-EB-001	04/04/2011	17:05	04/04/2011	17:07	04/06/2011

Analysis Comments About Results For This Analysis

1 Cyanide, Total in Soil

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3135.2J used to determine 'Total' results.**Basis:** Dry**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

(N/A)

1 Percent Solid

Lab: Region 7 EPA Laboratory - Kansas City, Ks.**Method:** EPA Region 7 RLAB Method 3142.9F**Basis:** N/A**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

(N/A)

1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3122.3D**Basis:** Dry**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

1 Conductivity by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Cyanide, Total in Water

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3135.2J used to determine 'Total' results.**Samples:** 102-__ 103-__ 104-__ 104-FD 106-__ 111-__ 111-FD
113-__ 115-__ 116-__**Comments:**

Analysis Comments About Results For This Analysis

(N/A)

1 Metals in Water by ICP/MS

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3123.1C**Samples:** 102-__ 103-__ 104-__ 104-FD 106-__ 111-__ 111-FD
113-__ 115-__ 116-__**Comments:**

Samples 102, 103, 104, 104 FD, 111, 111 FD, 113, and 115 had sediment at the bottom of the cubitainers. Only the water portion was analyzed.

1 pH of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Temperature of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Total Dissolved Oxygen in Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Turbidity of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

ASR Number: 5004**RLAB Approved Sample Analysis Results****05/06/2011****Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
1 Cyanide, Total in Soil					
Cyanide	mg/kg	0.200 U	0.200 U	0.200 U	0.200 U
1 Percent Solid					
Solids, percent	%	91.5	59.2	62.1	65.8
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	4.9 U	6.9 U	7.4 U	6.3 U
Barium	mg/kg	97.2	144	139	123
Cadmium	mg/kg	1.8	1.6	1.9	1.9
Chromium	mg/kg	10.3	10.7	12.3	14.2
Lead	mg/kg	16.3	14.6	18.2	17.0
Selenium	mg/kg	9.8 U	13.8 U	14.8 U	12.5 U
Silver	mg/kg	2.0 U	2.8 U	3.0 U	2.5 U

ASR Number: 5004**RLAB Approved Sample Analysis Results****05/06/2011****Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	4-FD	6-__	102-__	103-__
1 Cyanide, Total in Soil					
Cyanide	mg/kg	1.12	0.200 U		
1 Percent Solid					
Solids, percent	%	64.7	68.5		
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	6.6 U	6.4 U		
Barium	mg/kg	140	79.6		
Cadmium	mg/kg	2.1	1.3 U		
Chromium	mg/kg	14.8	6.7		
Lead	mg/kg	19.5	9.5		
Selenium	mg/kg	13.2 U	12.8 U		
Silver	mg/kg	2.6 U	2.6 U		
1 Conductivity by Field Measurement					
Conductivity	umhos/cm			0.551	0.535
1 Cyanide, Total in Water					
Cyanide	mg/L			0.0100 U	0.0100 U
1 Metals in Water by ICP/MS					
Antimony	ug/L			2.0 U	2.0 U
Arsenic	ug/L			1.0 U	1.1
Barium	ug/L			164	180
Beryllium	ug/L			1.0 U	1.0 U
Cadmium	ug/L			1.0 U	1.0 U
Chromium	ug/L			2.0 U	2.0 U
Cobalt	ug/L			1.0 U	1.0 U
Copper	ug/L			2.0 U	2.0 U
Lead	ug/L			1.0 U	1.2
Manganese	ug/L			100	399
Nickel	ug/L			3.8	4.2
Selenium	ug/L			5.0 U	5.0 U
Silver	ug/L			1.0 U	1.0 U
Thallium	ug/L			1.0 U	1.0 U
Vanadium	ug/L			1.0 U	1.8
Zinc	ug/L			2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU			8.30	7.51
1 Temperature of Water by Field Measurement					
Temperature	Deg C			6.08	5.98
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L			17.77	12.88
1 Turbidity of Water by Field Measurement					
Turbidity	NTU			0.0	20.7

ASR Number: 5004

RLAB Approved Sample Analysis Results

05/06/2011

Project ID: CHCWPCRCRA

Project Desc: C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	104-__	104-FD	106-__	111-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm			0.552	0.929
1 Cyanide, Total in Water					
Cyanide	mg/L	0.202	0.252	0.0210	8.34
1 Metals in Water by ICP/MS					
Antimony	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Barium	ug/L	122	119	159	52.9
Beryllium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Cobalt	ug/L	1.5	1.5	1.0 U	2.7
Copper	ug/L	2.0 U	2.0 U	2.0 U	2.2
Lead	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Manganese	ug/L	7.4	6.1	86.3	12.7
Nickel	ug/L	3.4	3.4	3.3	4.4
Selenium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Silver	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Zinc	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU			7.63	7.49
1 Temperature of Water by Field Measurement					
Temperature	Deg C			6.29	4.64
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L			13.83	8.22
1 Turbidity of Water by Field Measurement					
Turbidity	NTU			0.0	0.0

ASR Number: 5004**RLAB Approved Sample Analysis Results****05/06/2011****Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	111-FD	113-__	115-__	116-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.929	0.616	0.514	
1 Cyanide, Total in Water					
Cyanide	mg/L	10.3	0.0100 U	0.0100 U	0.0100 U
1 Metals in Water by ICP/MS					
Antimony	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	ug/L	1.0 U	3.3	1.0 U	1.0 U
Barium	ug/L	53.3	741	126	5.0 U
Beryllium	ug/L	1.0 U	1.9	1.0 U	1.0 U
Cadmium	ug/L	1.0 U	1.2	1.0 U	1.0 U
Chromium	ug/L	2.0 U	20.4	2.0 U	2.0 U
Cobalt	ug/L	2.8	17.8	1.0 U	1.0 U
Copper	ug/L	2.5	31.0	2.0 U	2.0 U
Lead	ug/L	1.0 U	6.2	1.0 U	1.0 U
Manganese	ug/L	16.3	2130	56.0	1.0 U
Nickel	ug/L	4.6	55.8	4.6	1.0 U
Selenium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Silver	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	ug/L	1.0 U	20.6	1.0 U	1.0 U
Zinc	ug/L	2.0 U	29.6	2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU	7.49	7.08	7.58	
1 Temperature of Water by Field Measurement					
Temperature	Deg C	4.64	8.47	6.52	
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	8.22	1.63	8.19	
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.0	>800	112	

**United States Environmental Protection Agency
Region VII
901 N. 5th Street
Kansas City, KS 66101**

Date: __/__/__

Subject: Data Disposition/Sample Release for ASR #: 5004

Project ID: CHCWPCRCRA

Project Description: C.W. Process Company - RCRA site sampling

From: Cynthia Hutchison
AWMD/RCAP

To: Kaye Dollmann
ENSV/CARB

I have received and reviewed the Transmittal of Sample Analysis Results for the above-referenced Analytical Services Request(ASR) and have indicated my findings below by checking one of the boxes for Data Disposition.

I understand all samples will be disposed upon receipt of this form, unless samples are requested to be held. If I do not return this form all samples will be disposed of on _____.

- ☐ "RELEASED" - Read-only to all Region 7 employees and contractors that have R7LIMS "Customer" account. All Samples may be disposed of upon receipt of this form if not requested to be held.
- ☐ "Project Manager Accessible" - Available on the LAN in R7LIMS for my use only. All Samples may be disposed of upon receipt of this form if not requested to be held.
- ☐ "Archived" - THIS DATA IS OF A SENSITIVE NATURE. Any future reports must be requested through the laboratory. All samples may be disposed of upon receipt of the form if not requested to be held.

-
- ☐ Hold Samples - I have determined that the samples need to be held until _____, after which time they will be disposed of in accordance with applicable regulations.
The reason for the hold is:

☐ Samples are associated with a legal proceeding.

☐ Question/Concern with data - possible reanalysis requested.

☐ Other: _____

APPENDIX H
ANALYTICAL DATA

**United States Environmental Protection Agency
Region 7
901 N. 5th Street
Kansas City, KS 66101**

Date: MAY - 5 2011

Subject: Transmittal of Sample Analysis Results for ASR #: 5004

Project ID: CHCWPCRCRA

Project Description: C.W. Process Company - RCRA site sampling

From: Michael F. Davis, Chief 
Chemical Analysis and Response Branch, Environmental Services Division wdf/6/11

To: Cynthia Hutchison
AWMD/RCAP

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Cynthia Hutchison**Org:** AWMD/RCAP**Phone:** 913-551-7478**Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling**Location:** Cedar Rapids**State:** Iowa**Program:** RCRA Corrective
Action**Purpose:** Site Characterization**GPRA PRC:** 302D99C

RCRA Site ID: IAD005277256.

Explanation of Codes, Units and Qualifiers used on this report**Sample QC Codes:** QC Codes identify the type of sample for quality control purpose.**Units:** Specific units in which results are reported.___ = Field Sample
FD = Field Duplicate% = Percent
Deg C = Degrees Celsius
NTU = Nephelometric Turbidity Units
SU = Standard Units (pH)
mg/L = Milligrams per Liter
mg/kg = Milligrams per Kilogram
ug/L = Micrograms per Liter
umhos/cm = Micromhos per Centimeter**Data Qualifiers:** Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.

U = The analyte was not detected at or above the reporting limit.

ASR Number: 5004

Sample Information Summary

05/05/2011

Project ID: CHCWPCRCRA Project Desc: C.W. Process Company - RCRA site sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - __		Solid	Location #1 (0-1' bgs)	CW-01-SD-001	04/04/2011	15:44	04/04/2011	15:46	04/06/2011
2 - __		Solid	Location #2 (0-1' bgs)	CW-01-SD-002	04/04/2011	16:15	04/04/2011	16:18	04/06/2011
3 - __		Solid	Location #3 (0-1' bgs)	CW-01-SD-003	04/04/2011	15:35	04/04/2011	15:37	04/06/2011
4 - __		Solid	Location #4 (0-1' bgs)	CW-01-SD-004	04/04/2011	16:53	04/04/2011	16:57	04/06/2011
4 - FD		Solid	Location #4 (0-1' bgs)/Field Duplicate of sample 4	CW-02-SD-004 FD	04/04/2011	16:53	04/04/2011	16:57	04/06/2011
6 - __		Solid	Location #5 (0-1' bgs)	CW-01-SD-005	04/04/2011	15:59	04/04/2011	16:02	04/06/2011
102 - __		Water	Location #2 - Surface water	CW-01-SW-002	04/04/2011	16:11	04/04/2011	16:13	04/06/2011
103 - __		Water	Location #3 - Surface water	CW-01-SW-003	04/04/2011	15:27	04/04/2011	15:32	04/06/2011
104 - __		Water	Location #4 - Surface water	CW-01-SW-004	04/04/2011	16:40	04/04/2011	16:52	04/06/2011
104 - FD		Water	Location #4 - Surface water/Field Duplicate of sample 104	CW-02-SW-004 FD	04/04/2011	16:40	04/04/2011	16:52	04/06/2011
106 - __		Water	Location #5 - Surface water	CW-01-SW-005	04/04/2011	15:54	04/04/2011	15:57	04/06/2011
111 - __		Water	Groundwater - On-site well	CW-01-GW-010	04/04/2011	10:24	04/04/2011	10:36	04/06/2011
111 - FD		Water	Groundwater - On-site well/Field Duplicate of sample 111	CW-02-GW-010 FD	04/04/2011	10:24	04/04/2011	10:36	04/06/2011
113 - __		Water	Location #11 - Groundwater	CW-01-GW-011	04/04/2011	14:02	04/04/2011	14:14	04/06/2011
115 - __		Water	Location #13 - Groundwater	CW-01-GW-013	04/04/2011	14:46	04/04/2011	14:57	04/06/2011
116 - __		Water	Soil Equipment Blank sample	CW-01-EB-001	04/04/2011	17:05	04/04/2011	17:07	04/06/2011

Analysis Comments About Results For This Analysis

1 Cyanide, Total in Soil

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3135.2J used to determine 'Total' results.**Basis:** Dry**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

(N/A)

1 Percent Solid

Lab: Region 7 EPA Laboratory - Kansas City, Ks.**Method:** EPA Region 7 RLAB Method 3142.9F**Basis:** N/A**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

(N/A)

1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3122.3D**Basis:** Dry**Samples:** 1-__ 2-__ 3-__ 4-__ 4-FD 6-__**Comments:**

1 Conductivity by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Cyanide, Total in Water

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3135.2J used to determine 'Total' results.**Samples:** 102-__ 103-__ 104-__ 104-FD 106-__ 111-__ 111-FD
113-__ 115-__ 116-__**Comments:**

Project ID: CHCWPCRCRA **Project Desc** C.W. Process Company - RCRA site sampling

Analysis Comments About Results For This Analysis

(N/A)

1 Metals in Water by ICP/MS

Lab: Region 7 ESAT Contract Lab (In-House)**Method:** EPA Region 7 RLAB Method 3123.1C**Samples:** 102-__ 103-__ 104-__ 104-FD 106-__ 111-__ 111-FD
113-__ 115-__ 116-__**Comments:**

Samples 102, 103, 104, 104 FD, 111, 111 FD, 113, and 115 had sediment at the bottom of the cubitainers. Only the water portion was analyzed.

1 pH of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Temperature of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Total Dissolved Oxygen in Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

1 Turbidity of Water by Field Measurement

Lab: (Field Measurement)**Method:** Measurement of field parameter**Samples:** 102-__ 103-__ 106-__ 111-__ 111-FD 113-__ 115-__**Comments:**

(N/A)

ASR Number: 5004**RLAB Approved Sample Analysis Results****05/05/2011****Project ID:** CHCWPCRCRA**Project Desc:** C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
1 Cyanide, Total in Soil					
Cyanide	mg/kg	0.200 U	0.200 U	0.200 U	0.200 U
1 Percent Solid					
Solids, percent	%	91.5	59.2	62.1	65.8
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	4.9 U	6.9 U	7.4 U	6.3 U
Barium	mg/kg	97.2	144	139	123
Cadmium	mg/kg	1.8	1.6	1.9	1.9
Chromium	mg/kg	10.3	10.7	12.3	14.2
Lead	mg/kg	16.3	14.6	18.2	17.0
Selenium	mg/kg	9.8 U	13.8 U	14.8 U	12.5 U
Silver	mg/kg	2.0 U	2.8 U	3.0 U	2.5 U

ASR Number: 5004

RLAB Approved Sample Analysis Results

05/05/2011

Project ID: CHCWPCRCRA

Project Desc: C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	4-FD	6-__	102-__	103-__
1 Cyanide, Total in Soil					
Cyanide	mg/kg	1.12	0.200 U		
1 Percent Solid					
Solids, percent	%	64.7	68.5		
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	6.6 U	6.4 U		
Barium	mg/kg	140	79.6		
Cadmium	mg/kg	2.1	1.3 U		
Chromium	mg/kg	14.8	6.7		
Lead	mg/kg	19.5	9.5		
Selenium	mg/kg	13.2 U	12.8 U		
Silver	mg/kg	2.6 U	2.6 U		
1 Conductivity by Field Measurement					
Conductivity	umhos/cm			0.551	0.535
1 Cyanide, Total in Water					
Cyanide	mg/L			0.0100 U	0.0100 U
1 Metals in Water by ICP/MS					
Antimony	ug/L			2.0 U	2.0 U
Arsenic	ug/L			1.0 U	1.1
Barium	ug/L			164	180
Beryllium	ug/L			1.0 U	1.0 U
Cadmium	ug/L			1.0 U	1.0 U
Chromium	ug/L			2.0 U	2.0 U
Cobalt	ug/L			1.0 U	1.0 U
Copper	ug/L			2.0 U	2.0 U
Lead	ug/L			1.0 U	1.2
Manganese	ug/L			100	399
Nickel	ug/L			3.8	4.2
Selenium	ug/L			5.0 U	5.0 U
Silver	ug/L			1.0 U	1.0 U
Thallium	ug/L			1.0 U	1.0 U
Vanadium	ug/L			1.0 U	1.8
Zinc	ug/L			2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU			8.30	7.51
1 Temperature of Water by Field Measurement					
Temperature	Deg C			6.08	5.98
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L			17.77	12.88
1 Turbidity of Water by Field Measurement					
Turbidity	NTU			0.0	20.7

ASR Number: 5004

RLAB Approved Sample Analysis Results

05/05/2011

Project ID: CHCWPCRCRA

Project Desc: C.W. Process Company - RCRA site sampling

Analysis/ Analyte	Units	104-__	104-FD	106-__	111-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm			0.552	0.929
1 Cyanide, Total in Water					
Cyanide	mg/L	0.202	0.252	0.0210	8.34
1 Metals in Water by ICP/MS					
Antimony	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Barium	ug/L	122	119	159	52.9
Beryllium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Cobalt	ug/L	1.5	1.5	1.0 U	2.7
Copper	ug/L	2.0 U	2.0 U	2.0 U	2.2
Lead	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Manganese	ug/L	7.4	6.1	86.3	12.7
Nickel	ug/L	3.4	3.4	3.3	4.4
Selenium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Silver	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Zinc	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU			7.63	7.49
1 Temperature of Water by Field Measurement					
Temperature	Deg C			6.29	4.64
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L			13.83	8.22
1 Turbidity of Water by Field Measurement					
Turbidity	NTU			0.0	0.0

Analysis/ Analyte	Units	111-FD	113-__	115-__	116-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.929	0.616	0.514	
1 Cyanide, Total in Water					
Cyanide	mg/L	10.3	0.0100 U	0.0100 U	0.0100 U
1 Metals in Water by ICP/MS					
Antimony	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	ug/L	1.0 U	3.3	1.0 U	1.0 U
Barium	ug/L	53.3	741	126	5.0 U
Beryllium	ug/L	1.0 U	1.9	1.0 U	1.0 U
Cadmium	ug/L	1.0 U	1.2	1.0 U	1.0 U
Chromium	ug/L	2.0 U	20.4	2.0 U	2.0 U
Cobalt	ug/L	2.8	17.8	1.0 U	1.0 U
Copper	ug/L	2.5	31.0	2.0 U	2.0 U
Lead	ug/L	1.0 U	6.2	1.0 U	1.0 U
Manganese	ug/L	16.3	2130	56.0	1.0 U
Nickel	ug/L	4.6	55.8	4.6	1.0 U
Selenium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Silver	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	ug/L	1.0 U	20.6	1.0 U	1.0 U
Zinc	ug/L	2.0 U	29.6	2.0 U	2.0 U
1 pH of Water by Field Measurement					
pH	SU	7.49	7.08	7.58	
1 Temperature of Water by Field Measurement					
Temperature	Deg C	4.64	8.47	6.52	
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	8.22	1.63	8.19	
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.0	>800	112	

Cynthia Hutchins EN
ACTIVITY LEADER(Print)
~~John D. Dixon~~ RCRA
CONTENTS OF EQUIPMENT

CONTENTS OF SHIPMENT

~~Not used~~
SBO 4/5/2011

ASR 5004
complete.

~~Chr Temp. Reed~~
~~but 0-10~~

PERSONNEL CUSTODY RECORD 4/8/11

7-EPA-9262(Revised 5/85) *U.S. GPO: 2002-756-917/40053

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 1 QC Code: ____ Matrix: Solid Tag ID: 5004-1-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #1, 0-1 foot bgs

Storet ID: _____ **External Sample Number:** CW-01-SD-001

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____

Sample Collection: Start:

4/4/11

15:41

Longitude: _____

End:

4/4/11

15:46

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 2 QC Code: Matrix: Solid Tag ID: 5004-2-__

Project ID: CHCWPCRCRA

Project Manager: Cynthia Hutchison

Project Desc: C.W. Process Company - RCRA site sampling

City: Cedar Rapids

State: Iowa

Program: RCRA Corrective Action

Location Desc: Location #2, 0-1 feet bgs

Storet ID: _____

External Sample Number: CW-01-SD-002

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start:

4/4/11

16:15

Longitude: _____

End:

4/4/11

16:18

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 3 QC Code: ____ Matrix: Solid Tag ID: 5004-3-____

Project ID: CHCWPCRCRA

Project Manager: Cynthia Hutchison

Project Desc: C.W. Process Company - RCRA site sampling

City: Cedar Rapids

State: Iowa

Program: RCRA Corrective Action

Location Desc: Location #3, 0-1 foot bgs

Storet ID: _____

External Sample Number: CW-01-SD-003

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

15:35

Longitude: _____

End: 4/4/11

15:37

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 4 QC Code: Matrix: Solid Tag ID: 5004-4-__

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, 0-1 foot bgs

Storet ID: External Sample Number: CW-01-SD-004

Expected Conc: Low (or Circle One: Low Medium High) Date 4/4/11 Time(24 hr)

Latitude:

Sample Collection: Start: 4/4/11 16:53

Longitude:

End: 4/4/11 16:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: ⁴5004 QC Code: FD Matrix: Solid Tag ID: 5004-^{4FD}5

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, 0-1 foot bgs, duplicate

Storet ID: _____ External Sample Number: CW-02-SD-004

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

16:53

Longitude: _____

End: 4/4/11

16:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 6 QC Code: ____ Matrix: Solid Tag ID: 5004-6-____

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #5, 0-1 foot bgs

Storet ID: _____ External Sample Number: CW-01-SD-005

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

15:59

Longitude: _____

End: 4/4/11

16:02

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 102 QC Code: _____ Matrix: Water Tag ID: 5004-102-_____

Project ID: CHCWPCRCRA

Project Manager: Cynthia Hutchison

Project Desc: C.W. Process Company - RCRA site sampling

City: Cedar Rapids

State: Iowa

Program: RCRA Corrective Action

Location Desc: Location #2, surface water

Storet ID: _____

External Sample Number: CW-01-SW-002

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start:

4/4/11

16:11

Longitude: _____

End:

4/4/11

16:13

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~700 (N/A)~~ Final Parameters

Temp (°F)	6.08°C
pH	8.30
D.O. (mg/L)	17.77
Turb (NTU)	0.0
Cond (µS/cm)	0.551
ORP	216

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 103 QC Code: ___ Matrix: Water Tag ID: 5004-103-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #3, Surface water

Storet ID: _____ External Sample Number: CW-01-SW-003

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

15:29

Longitude: _____

End: 4/4/11

15:32

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~na(N/A)~~ Final Parameters

Temp (°F) 59.8 °C
pH 7.51
DO (mg/L) 12.88
Turb (NTU) 20.7
Cond (µS/cm) 0.535
ORP 92

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 104 QC Code: ___ Matrix: Water Tag ID: 5004-104-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #4, surface water

Storet ID: ___ External Sample Number: CW-01-SW-004

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: ___

Sample Collection: Start: 4/4/11

16:40

Longitude: ___

End: 4/4/11

16:52

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

304 (N/A) Final Parameters

Temp (°F)

pH

D.O (mg/L)

Turb (NTU)

Cond (uS/cm)

ORP

too shallow to
measure parameters

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004

Sample Number: ¹⁰⁴~~105~~

QC Code: FD

Matrix: Water

Tag ID: 5004-^{104FD}~~105~~

Project ID: CHCWPCRCRA

Project Manager: Cynthia Hutchison

Project Desc: C.W. Process Company - RCRA site sampling

City: Cedar Rapids

State: Iowa

Program: RCRA Corrective Action

Location Desc: Location #4, surface water, duplicate

Storet ID: _____

External Sample Number: CW-02-SW-004

Expected Conc: Low (or Circle One: Low Medium High)

Date

Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

16:40

Longitude: _____

End: 4/4/11

16:52

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~NOVA~~

Final Parameters

Temp (°F)

pH

D.O. (mg/L)

Turb (NTU)

Cond (µS/cm)

ORP

Too shallow to
measure parameters

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5004 **Sample Number:** 106 **QC Code:** ____ **Matrix:** Water **Tag ID:** 5004-106-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #5, surface water

Storet ID: _____ **External Sample Number:** CW-01-SW-005

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____

Sample Collection: Start: 4/4/11

15:54

Longitude: _____

End: 4/4/11

15:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~502(N/A)~~ *Final Parameters*
Temp (°F) 6.29°C
pH 7.63
D.O. (mg/L) 13.83
Turb (NTU) 0.0
Cond (µS/cm) 0.552
ORP 202

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 111 QC Code: ___ Matrix: Water Tag ID: 5004-111-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: ~~Location #10~~, groundwater, onsite well

Storet ID: _____

External Sample Number: CW-01-GW-010

Expected Conc: ~~LOW~~ (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 04/04/2011

10:24

Longitude: _____

End: 04/04/2011

10:36

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

309 (N/A)

Final Parameters

Temp (^{5mm}) °C: 4.64

pH 7.49

D.O. (mg/L) 8.22

Turb (NTU) 0.0

Cond (uS/cm) 0.929

ORP 357

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: ¹¹¹112 QC Code: FD Matrix: Water Tag ID: 5004-^{111FD}112

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #10, groundwater, duplicate Groundwater, onsite well, duplicate

Storet ID: External Sample Number: CW-02-GW-010

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: Sample Collection: Start: 04/04/2010 10:24

Longitude: End: 04/04/2010 10:36

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

504 (N/A)

Final Parameters

Temp (^{mm}F) (C): 4.64

pH 7.49

D.O. (mg/L) 8.22

Turb (NTU) 0.0

Cond (uS/cm) 0.929

ORP 357

Sample Collected By: JD/BAH

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 113 QC Code: ____ Matrix: Water Tag ID: 5004-113-____

Project ID: CHCWPCRCRA **Project Manager:** Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Location #11, groundwater

Storet ID: _____

External Sample Number: CW-01-GW-011

Expected Conc: Low (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: _____

Sample Collection: Start: 4/4/11

14:02

Longitude: _____

End: 4/4/11

14:14

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

~~J10 (N/A)~~ Final Parameters

Temp (°F) 8.47 °C

pH 7.08

D.O. (mg/L) 1.63

Turb (NTU) >800

Cond (µS/cm) 0.616

ORP 39

Sample Collected By: ~~ID/BAH~~ RA/Terranext

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 5004 Sample Number: 115 QC Code: ___ Matrix: Water Tag ID: 5004-115-___

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Location #13, groundwater

Storet ID: _____ External Sample Number: CW-01-GW-013

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

14:46

Longitude: _____

End: 4/4/11

14:57

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

300(N/A)

Final Parameters

Temp (°F) 6.52°C
pH 7.58
D.O. (mg/L) 8.19
Turb (NTU) 112
Cond (µS/cm) 0.514
ORP 109

inadvertent
cross-cont.
Sample was
collected.
JDO 4/11/11

Sample Collected By: JD/BAT RY/Ternext

Sample Collection Field Sheet

US EPA Region 7

Kansas City, KS

ASR Number: 5004 Sample Number: 116 QC Code: ____ Matrix: Water Tag ID: 5004-116-____

Project ID: CHCWPCRCRA Project Manager: Cynthia Hutchison
Project Desc: C.W. Process Company - RCRA site sampling
City: Cedar Rapids State: Iowa
Program: RCRA Corrective Action

Location Desc: Soil Equipment EB

Storet ID: _____ External Sample Number: CW-01-EB-001

Expected Conc: Low (or Circle One: Low Medium High) Date Time(24 hr)

Latitude: _____

Sample Collection: Start: 4/4/11

17:05

Longitude: _____

End: 4/4/11

17:07

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water

Sample Comments:

(N/A)

Sample Collected By: JD/BAH